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B U S I N E S S

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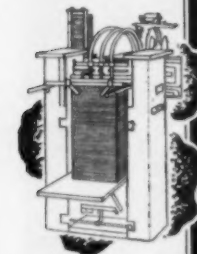
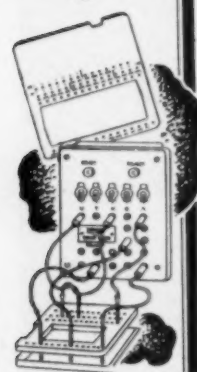
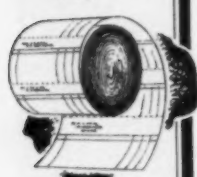
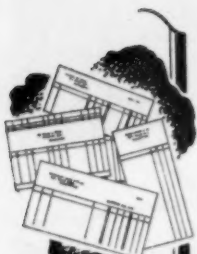
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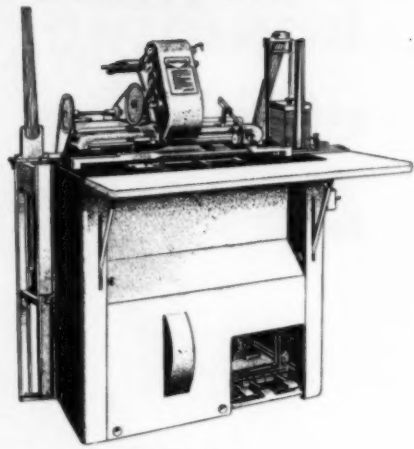


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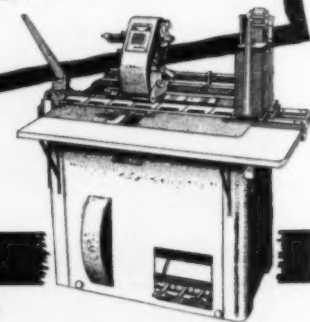
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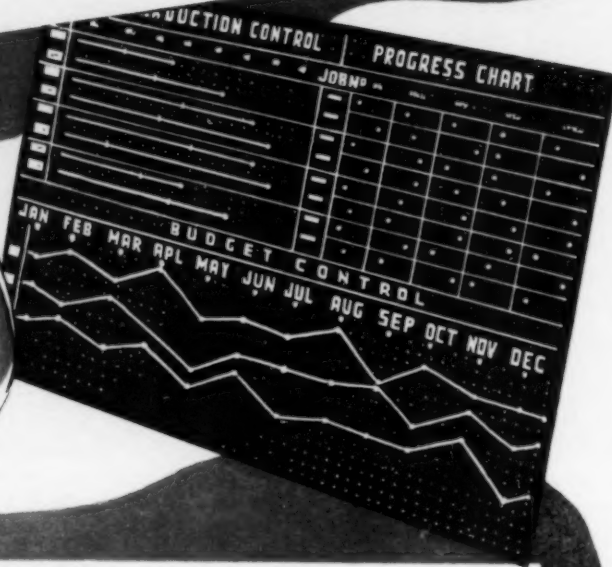
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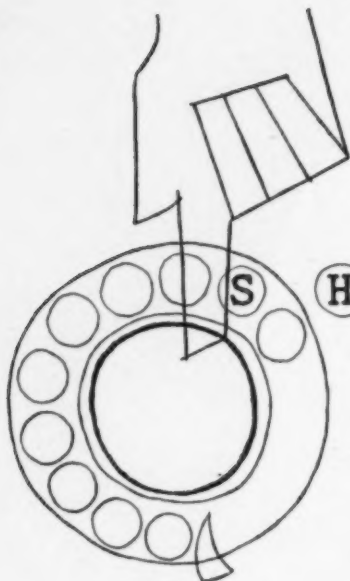
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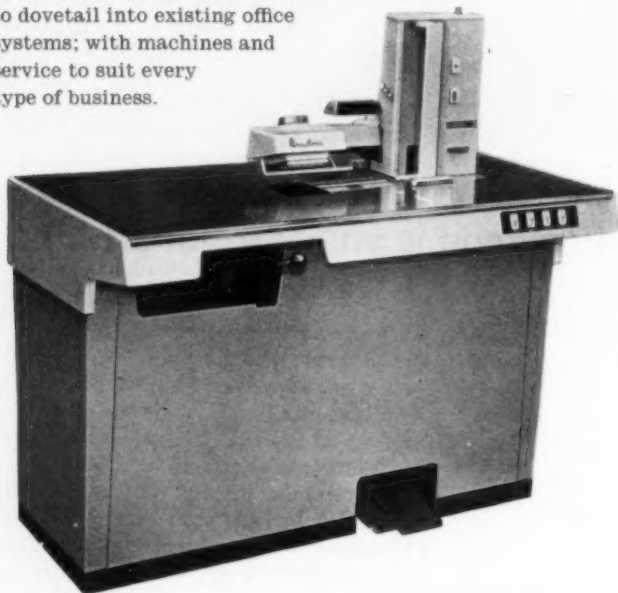
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Nature of business.....

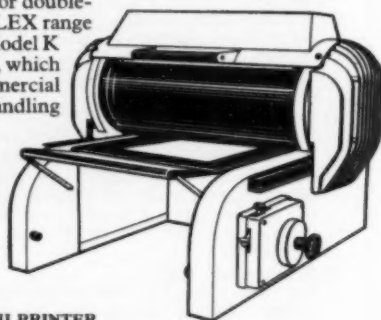
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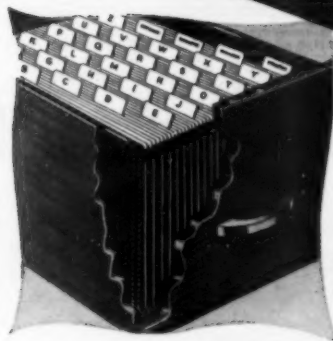
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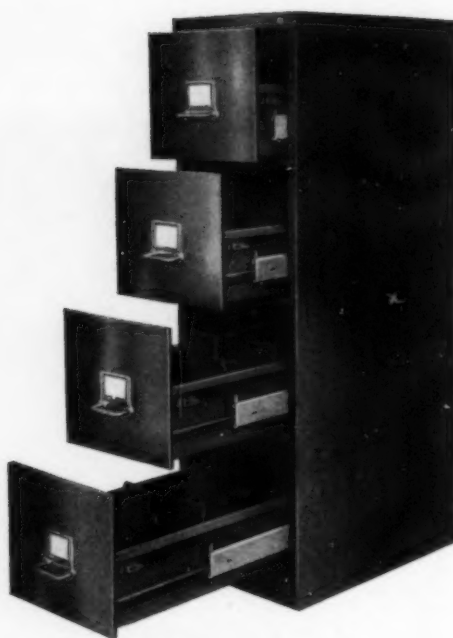
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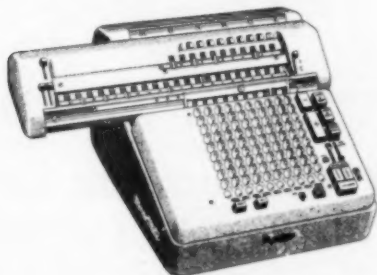
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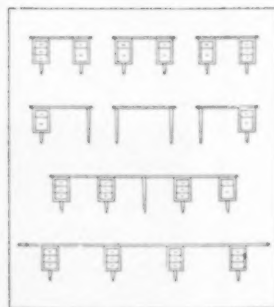
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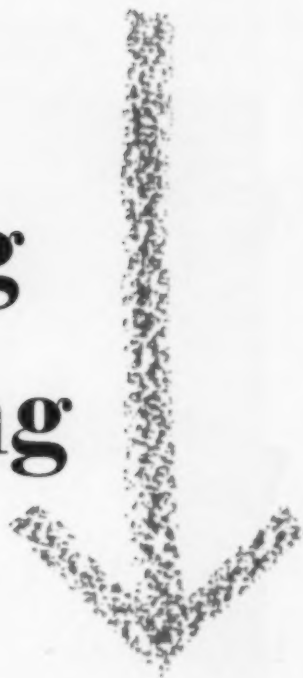
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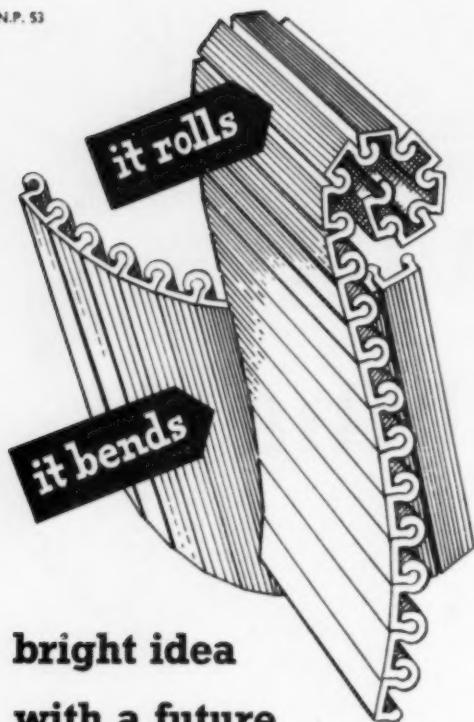
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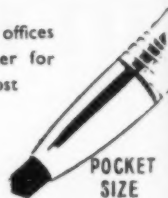


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TGA FPM

Sept. 57

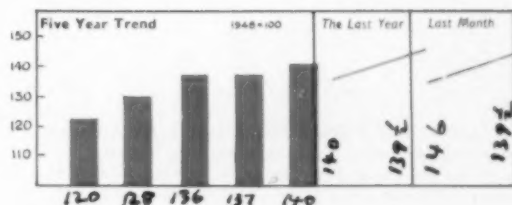
ECONOMIC PROSPECT

Special 'BUSINESS' Survey and Forecast

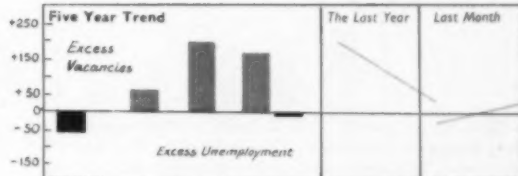
STATE OF THE NATION

Production should boom in the autumn and labour become scarce ● Outlook for overseas trade is good ● In spite of Government pruning, total capital spending will remain high ● Stock levels may rise ● Consumer spending will continue to rise ● Prices and wages are chasing each other upwards again ● Credit is likely to get tighter and dearer

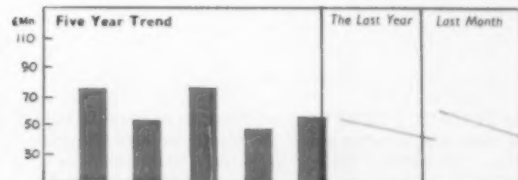
INDUSTRIAL PRODUCTION is at last moving upwards, after a two-year lull. Provisional May, 1957 index is 145.6, a rise of 10 or 11 points on April, and a rise of 9 or 10 on May 1956. The February-May average was 140½, a rise of 18½ points on four years earlier.



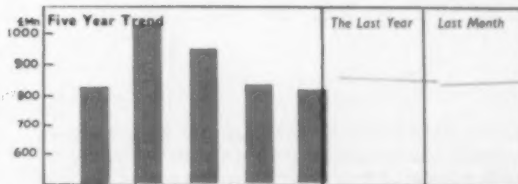
EMPLOYMENT POSITION has returned to the post-war normal, and labour is likely to get shorter. In June there were 44,000 more vacancies than unemployed. A month earlier there were 30,000 more unemployed than vacancies. The boom may not, however, reach the proportions of two years ago, when there were 200,000 more vacancies than unemployed.



TRADE GAP remains narrow, and is within our means when invisible earnings are taken into account. In June the excess of imports over exports was only £38.0 million, a fall of £21.8 million on May and a fall of £14.0 million on a year earlier. The trade gap has recently been about £20 million less than it was four years earlier.



GOLD AND DOLLAR RESERVES may show some fall after recent rises. The June total was £850 million, or £12 million above May and only £2 million less than a year earlier. Recently the reserves have been about the same level as four years ago.

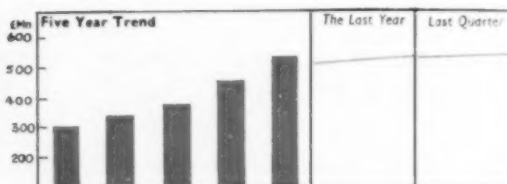


KEY TO THE CHARTS. Except where otherwise indicated, each bar chart depicts the average monthly value of a particular statistic during the most recent three months, and compares it with the same figure for each of the four preceding years. The earliest year in each case is shown on the extreme left. Under the heading "The Last Year," a straight-line graph depicts the latest month of a particular statistic and compares it with the same month a year earlier. And under the heading "Last Month," the most recent figure is compared with the one for the previous month. In both cases, the earlier figure is to the left and the later figure to the right.

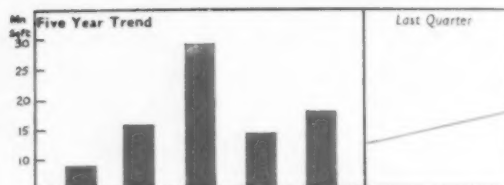
MAIN ECONOMIC INFLUENCES on the STATE OF THE NATION

1. Trends in CAPITAL SPENDING

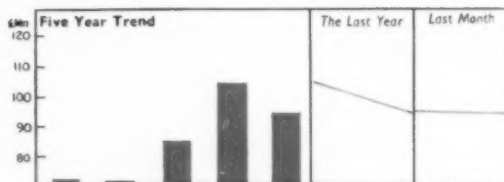
INDUSTRIAL INVESTMENT PLANS show that total capital spending is fairly steady at a high level. The Board of Trade enquiry indicates that the 1957 total will be above the level of 1956, which was about 20 per cent above 1955 and about 75 per cent above 1952.



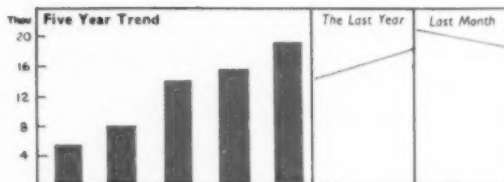
FACTORY BUILDING APPROVALS have risen again, but are unlikely to reach the 1955 boom proportions. In the second quarter of 1957, total area approved was 18.8 million sq. ft., a rise of 5.1 on the first quarter and a rise of 4.5 on a year earlier. Present level is double that of four years ago.



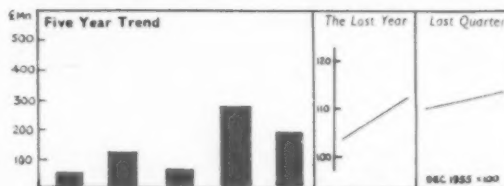
MACHINE TOOL ORDERS are steady, but deliveries are rising, so order books are sagging slightly. Total orders outstanding in April were £93.2 million, a fall of £1.5 million on March and a fall of £10.8 million a year earlier. But the present level of orders is about £20 million above the level four years ago, before the boom in engineering.



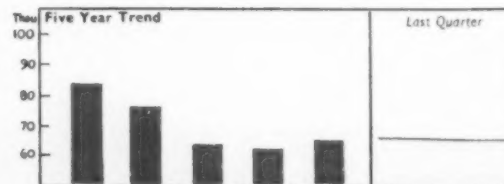
INDUSTRIAL HIRE PURCHASE has recently been fairly buoyant. The Board of Trade index for May was 117, a decline of 10 points on April but 41 points above a year earlier. The accompanying chart is based on hire purchase contracts for new cars and commercial vehicles. It shows more than a three-fold rise in the last four years.



MATERIAL STOCKS have lately risen in manufacturing industry but decreased in commerce and Government. The Board of Trade index for manufacturing stocks at the end of the first quarter this year was 114.6, a rise of 4.7 on the previous quarter and a rise of 10.7 on a year earlier. Non-manufacturing stocks fell by about 11 per cent during the first quarter.

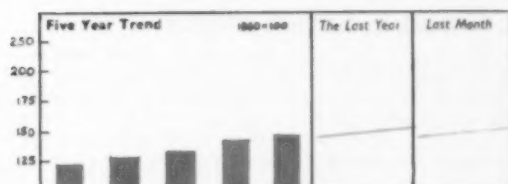


HOME BUILDING STARTS are still fairly buoyant. Permanent houses started in the first quarter of 1957 totalled 64,600, a rise of 2,000 on a year earlier but a fall of 20,600 on four years earlier. Number under construction at March 31 was 258,000, a fall of 28,400 on a year earlier.

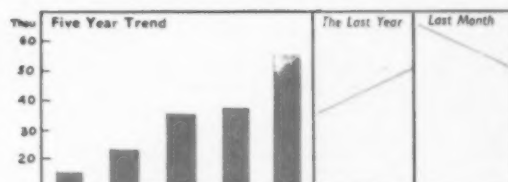


2. Trends in CONSUMER SPENDING

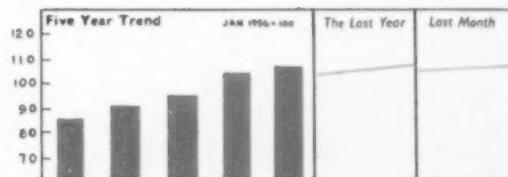
RETAIL SALES outlook is very good. The May index was 152, a rise of 4 points on April and of 5 points on a year earlier. The recent level of the index is also about 27 points above the level four years ago.



DOMESTIC HIRE PURCHASE is rising again, and subject to changes in controls, should remain buoyant. The May index was 74, a rise of 8 points on April and 10 points on a year earlier. The accompanying chart, based on used car contract figures, shows the extent of the boom in recent years.



WAGE RATES are rising again, but may temporarily level off in the autumn. The May index was 110, a rise of 2 points on April and 5 points on a year earlier. There has been a rise of more than 20 points over the last four years.

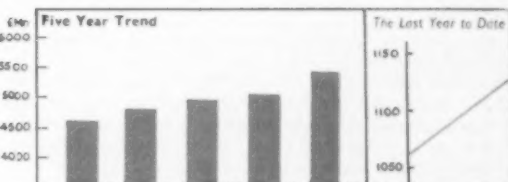


PERSONAL EXPENDITURE is likely to go on rising. In the first quarter of 1957, total was £3,192 million, a fall of £400 million on the Christmas quarter but over £100 million more than a year earlier, and over £600 million more than four years earlier.



3. Trends in PUBLIC SPENDING

PAYMENTS FROM EXCHEQUER in the current financial year are about £60 million above the same period last year. And supplementary estimates are likely to make it difficult to achieve the Budget objective—a cut of about £40 million on last year's total. In the last five years Government expenditure has risen by 5 per cent in real terms, after allowing for price increases.

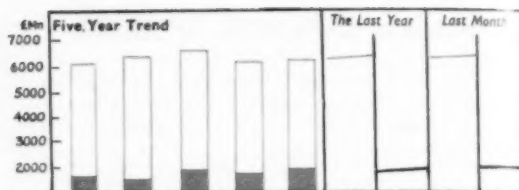


EXCHEQUER DEFICIT to date this year is about £30 million less than at the same time last year. This is the time of year when a deficit may be expected. The Budget anticipated a surplus of £462 million on the year as a whole. This may easily be achieved, with buoyant tax revenue.

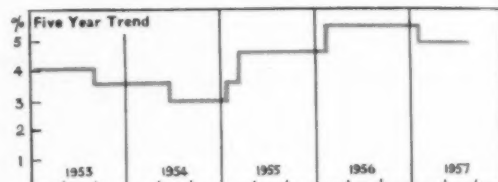


4. Trends in CREDIT POLICY

BANK DEPOSITS AND ADVANCES have both recently been at high levels. Average level of deposits has topped £6,300 million, a rise of £100 million on a year earlier and of £200 million on four years ago. Bank advances have been above £2,000 million, also a rise of £100 million on a year ago and of £200 million on four years ago.

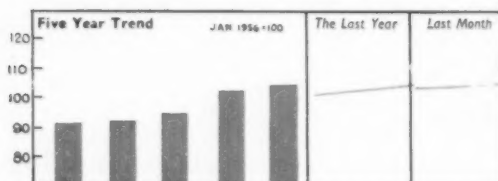


BANK RATE at the time of going to press remains at 5 per cent. It could be moved slightly upwards if talk of inflation continued unabated. The accompanying chart shows movement of Bank Rate in recent years.

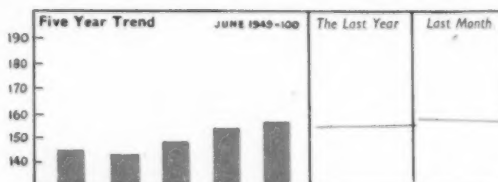


5. Trends in MARKET PRICES

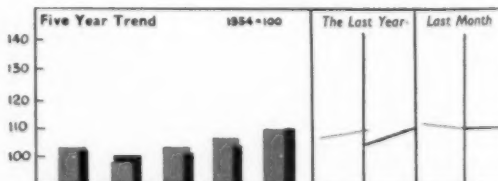
RETAIL PRICES are rising again and are likely to continue upwards for a point or two before the year's end. The June index was 105.7, a rise of 1.1 on May and a rise of 3.3 on a year earlier. There has been a 15 point rise in the last four years.



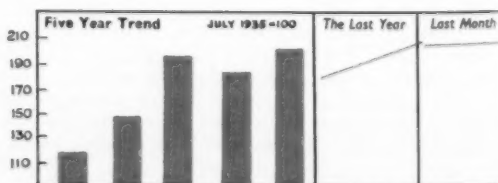
RAW MATERIAL PRICES have sagged, but may rise later in the year. The June index for basic materials used in non-food manufacturing industry was 155.8, or 4.1 points below May and only 0.6 above the level a year earlier. There has been a 10 point rise in the last four years.



TERMS OF TRADE have recently improved, with import prices falling and export prices steady. May import price index was 110, the same as in April but 5 points higher than a year earlier and 9 points higher than four years earlier. May export price index was also 110, a fall of 1 point on April and a rise of 4 points on a year earlier. (Import prices are shown in colour, export prices in black.)



SHARE PRICES have been steadied in their boom by the prospect of economic cuts and restrictions. At the time of going to press the *Financial Times* index of industrial ordinary shares is around 204, or similar to the June average but over 20 points higher than a year earlier and about 85 points higher than four years earlier.





Time for action...

Sometimes it may be wise to rush in where angels—whether Socialist or Conservative—are about to tread. On many occasions in the past when legislation has been in prospect, we have advised employers to “wait and see”. The statements that have now been published on behalf of both the leading political parties make it perfectly clear, however, that any employer of labour who has not so far made proper retirement provision for all his permanent employees would be well advised to install an adequate pension scheme without delay.

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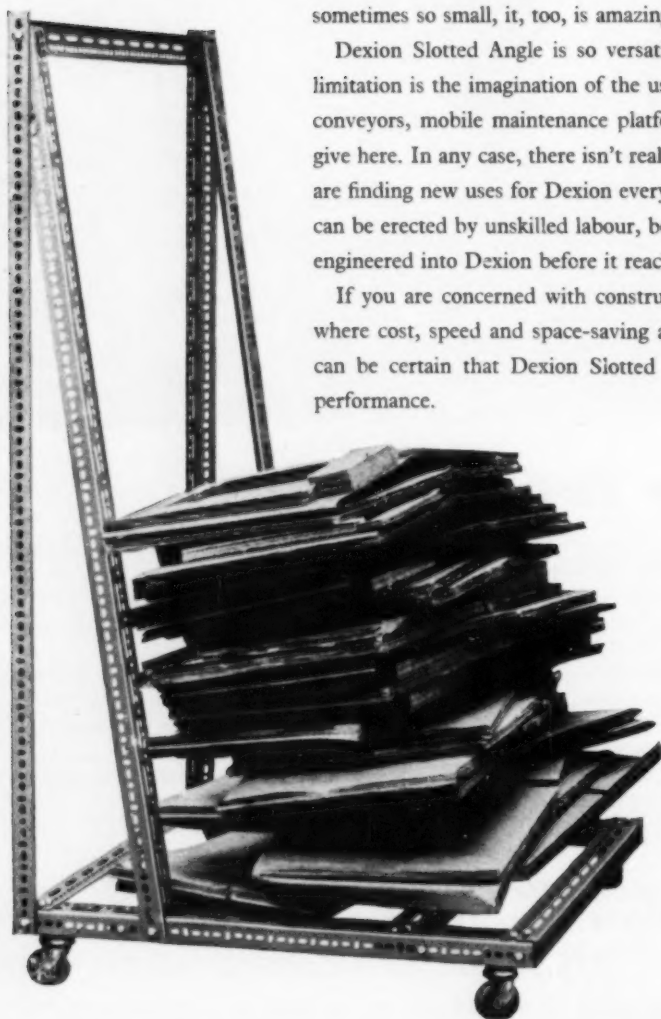
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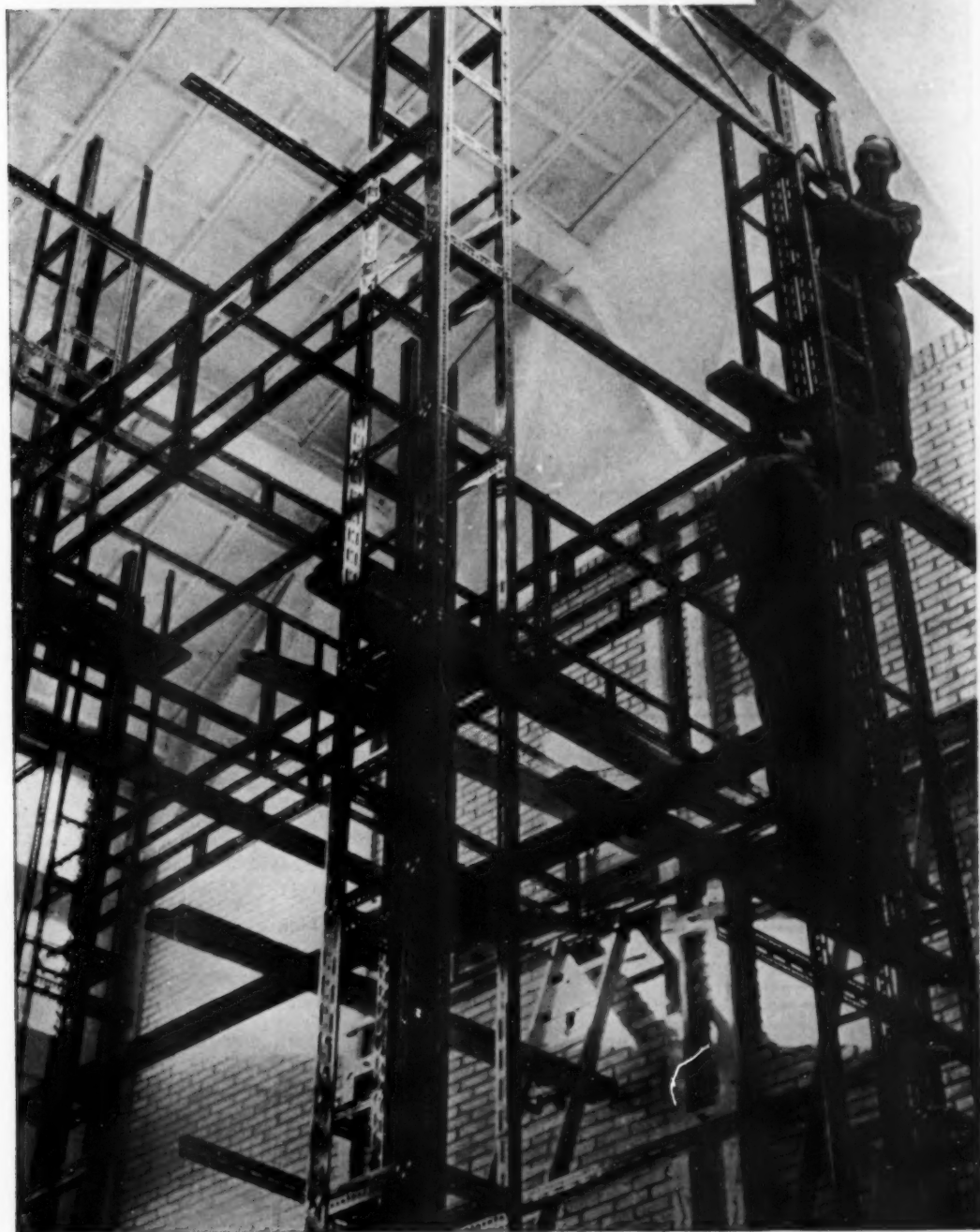
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HOME MARKET SURVEY

A Round Britain Survey: Regional Notes on Markets and Industrial Developments

YORKSHIRE

INDUSTRIAL activity in general is continuing at a high level, with the engineering trades well employed and pronounced recovery in the motor vehicles group. Short-time working has diminished still further. Since mid-1956 slight increases have occurred in the number of persons employed in woollen and worsted, cotton textiles and iron and steel while decreases have occurred in tailoring, motor vehicles and aircraft, hand tools and cutlery, and food, drink and tobacco. In coalmining, the peak in the seasonal rise in manpower now appears to have been reached, and the total stands at just over 138,060, a gain of some 500 compared with this time last year.

New buildings and extensions approved for manufacturing industries in the East and West Ridings since the end of the war amount to over 48 million sq. ft. of additional floor space, and of this 7.5 million sq. ft. are currently under construction. The rate of applications continues to be substantial and so far this year nearly 3 million sq. ft. of additional factory floor space have been approved. The largest number of development schemes have been proposed by the engineering, metal manufacture and textiles and clothing industries, and if all firms' estimates are realized over 2,500 new jobs will result.

Exports from the region continue to be satisfactory and at an increasing level. A number of firms are making efforts to resume trade with China following the Government's decision to lift the ban on certain goods for that country. This should be of benefit to the wool textile industry which has been exporting appreciable quantities of material to China for a long time. Increased shipments of woollen and worsted yarns and fabrics have been going to North America and Western Germany.

Demand for **steel** continues to grow, and makers are expanding their research, development and production facilities. New laboratories of the British Steel Castings Research Association have just been opened at Sheffield. Costing £93,000, they have been built and equipped in a year. The United Steel Companies have established a new central department of operational research and cybernetics, based in Sheffield, with the aim of advancing the latest managerial techniques of control. The group are now carrying out an expansion programme which will cost £20 million over the next few years. At the Sheffield works of Samuel Fox and Co., where last year 10 per cent more stainless steel

was produced than in 1955, a combined bar and rod mill is being built and another large arc furnace is to be installed later this year. The second stage of Steel, Peech and Tozer's £400,000 programme for modernizing the cogging mill at their Rotherham works should be completed next month. Kayser Ellison and Co., the Sheffield steelmakers, are engaged on a reorganization scheme—the first stage has been completed at a cost of £100,000.

The research and development activities of Hadfields Ltd. have been intensified. To meet the specialized requirements of nuclear power engineering a number of **new alloy steels** have been developed and in the gas turbine field existing alloy steels have been improved and work undertaken on the use of new materials. A site has been chosen and plans prepared for an addition to the company's steel melting plant. Further new equipment is projected for the machine shops.

Thos. Firth and John Brown Ltd., who last year spent £990,000 on capital account, are currently carrying out several major development schemes including the installation of two new forging presses and additions to the cogging mill capacity which will increase the output of billets by 30 per cent. Further schemes approved but not commenced involve expenditure of over £2.5 million.

Davy and United Engineering Co., of Sheffield, who are experiencing heavy demand for their **rolling mill**



The vertical line at 100 represents the national average level of retail trade for the latest month (May). Against this average the performance of each region may be measured



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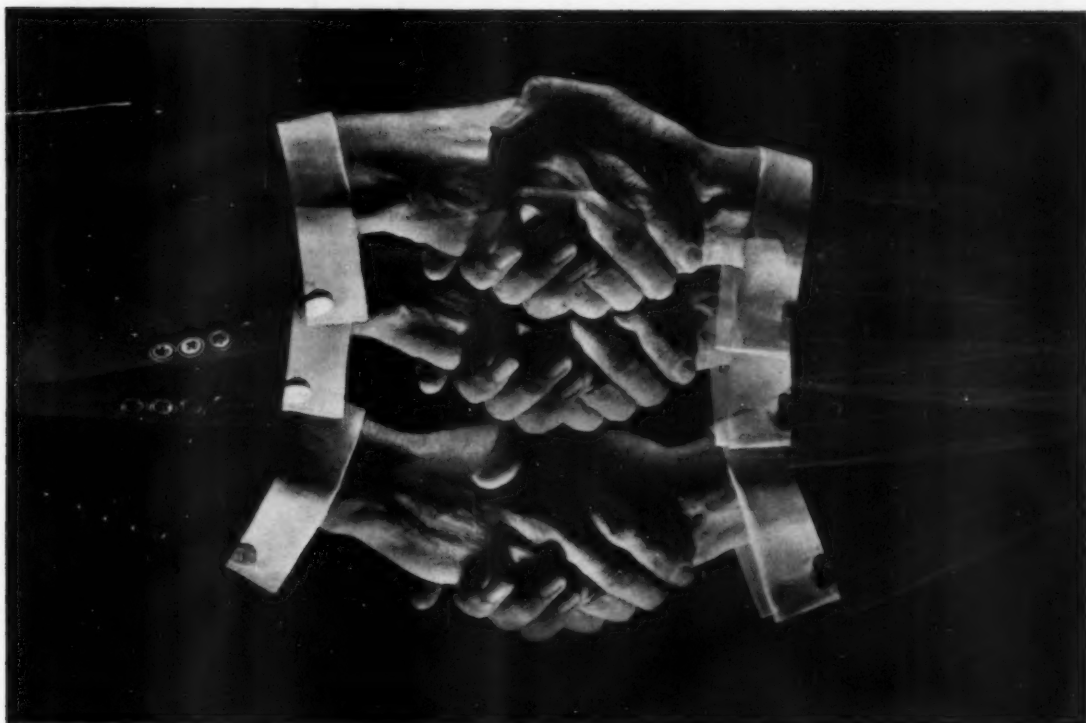
ECONOMIC PROSPECT

plant, have under consideration the establishment of further machine and erecting shops at Darnall. Darlington and Simpson Rolling Mills Ltd. expect to complete the final stage of the modernization scheme for their 16in. section mill during next summer. Scheduled to start production this autumn, the new factory of Stanley Works (G.B.) at Ecclesfield, near Sheffield, will be equipped with the latest plant and machinery for the manufacture of quality carpenters' hammers. An extension to the Huddersfield works of Hopkinsons Ltd., now nearly completed, will provide extra capacity for the manufacture of forged **steel valves**. Now in course of erection is a new heavy machine and fitting shop for the production of large valves for nuclear power plant. Newton Chambers and Co., Thorncliffe, are engaged in expansion schemes involving capital expenditure of some £900,000. To improve their existing spares and servicing arrangements and increase manufacturing capacity, Joy-Sullivan Ltd., makers of **mining** equipment, have acquired a fully-equipped factory at Dronfield, near Sheffield.

A £2.25 million extension to their works at Attercliffe Common, Sheffield, is being built by Metropolitan-Vickers. When completed it will double the existing capacity for the manufacture of **railway traction motors** and **generators**. Due to the rising demand for **small power motors** B.T.H. anticipate a considerable increase in the size of their plant at Thorne, near Doncaster, which has just been extended, during the next five years. Thos. W. Ward Ltd. are now engaged in mechanizing the foundry at their Darlington works. Capacity of the Yorkshire Copper Works Ltd., Leeds, for the production of **plastics tubes** and fittings is growing rapidly, and, with associates, the company have established a new concern in Nigeria for the manufacture of plastics tubes there. Over £1 million has been spent in the past three years by the British Oxygen Co. in erecting at Brinsworth, near Rotherham, an **oxygen**-producing factory, two plants with storage facilities and an office block where the company's Yorkshire district administration is centred. By the end of next year the firm plan to have built an oxygen compressing station, a dissolved acetylene factory, a loading dock, a garage to accommodate 60 commercial vehicles and a works demonstration and service block. Total cost of the new Brinsworth plant will be £2 million. A unit for the production of nitrous oxide may be erected at a later date.

New research and control laboratories attached to the Kingston works in Hull of Reckitt and Colman Holdings are now in operation. A highly mechanized Harpic plant has been erected in new buildings at the firm's Gipsyville works in Hull while the Kingston analgesic plant is being extended to cope with anticipated future demand. **Electronic computer** equipment to the value of over £100,000 has been ordered for use at Hull. I.C.I. are to increase production of Terylene

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Peter Spooner, BUSINESS, April, 1957. Orbit will send you a reprint if you wish.

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polyester fibre to 30 million lb. a year by extending sections of their plant at Wilton. Work has already begun, and additional quantities of Terylene will become available early next year.

Comment on the fact that recent important developments compel the **wool textile** industry as a whole to face heavy capital expenditure over the next decade was made at the annual general meeting of West Riding Worsted and Woollen Mills Ltd., Bradford, by Sir John Keeling, the chairman. The company were, he said, constantly engaged in examining new methods of production and testing new plant on an experimental basis, apart from keeping their plants up to date and adding to them where necessary. They were continuing to take a considerable interest in the use of the newer synthetic fibres, some of which were suitable for admixture with wool.

The Bradford Dyers' Association are making progress with a long-term plan of reorganization of their dyeing and finishing section. The first step was the erection of a new power plant at Brighouse, and this has now been operating for over a year. The next phase will be the transfer of all processing now carried out at Edward Ripley and Son, Bowling Dyeworks, Bradford, to a newly equipped works at Brighouse. When the plan is completed the Association will possess what is claimed as the most up to date dyeing and finishing plants in the country, designed to cater for the requirements of the woollen and worsted industry.

B.D.A. are moving into new fields of enterprise. They have acquired the controlling interest in an old-established company engaged in structural engineering and also in two smaller concerns engaged in air conditioning and dust extraction and in civil engineering.

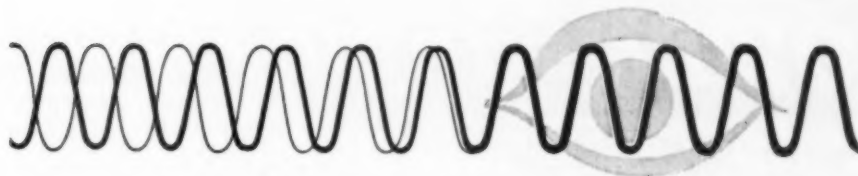
New plant brought into operation by William Denby and Sons, Bradford, includes machinery for the processing of woven piece goods in man-made fibre blends, and also a spirit solvent plant for the production of silicone finishes on all types of fabrics. A growing business is being done in processing furnishing fabrics and pile cloths. R. Beanland and Co., the worsted spinners of Clayton West, near Huddersfield, who in the past year have installed new drawing machinery at a cost of £60,000, are continuing with the re-equipment of their mills.

As part of their search for new oil sources in the U.K., B.P. are to conduct a seismic survey in an area near York. In association with I.C.I. the company are also drilling for natural gas at Robin Hood's Bay near Whitby. The Central Electricity authority are planning to build in Yorkshire a £40 million power station that will burn over 2.5 million tons of coal a year. The proposed site is at Thorpe Marsh, some four miles north-east of Doncaster and the station will have an output of 1.1 million kW.

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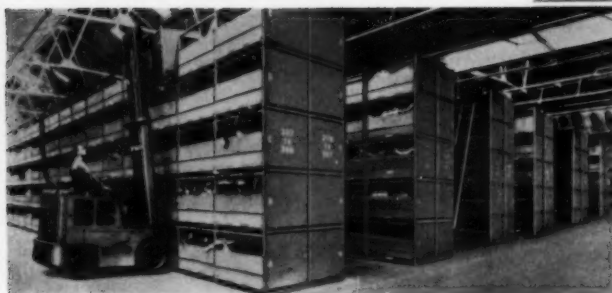
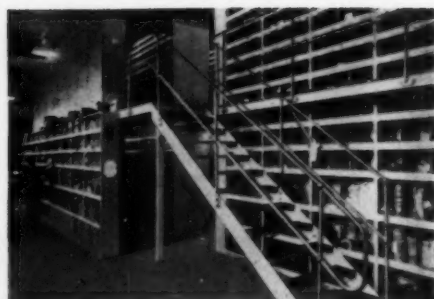
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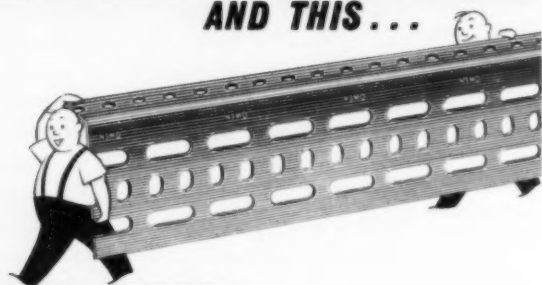


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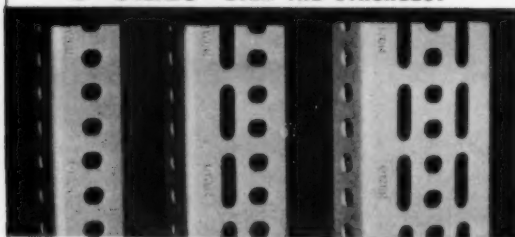
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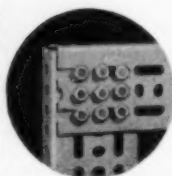
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EXPORT MARKET SURVEY

A Round-the-World Survey: Country by Country

VIET-NAM, CAMBODIA and LAOS

THOUGH they are faced with many major economic problems, Viet-Nam, Cambodia and Laos (which before the war formed French Indo-China—one of the most prosperous areas in South-east Asia) present a growing sales potential. It has recently been estimated, for instance, that U.K. exports to Viet-Nam, the largest of the three countries and one with a population of 25 million, could be trebled, and openings are increasing in the other two both for capital and consumer products.

The area is being wooed energetically by the East as well as the West. China has offered £8 million worth of economic and technical aid to Cambodia; and in recent months exhibitions of Chinese goods from Formosa and of Japanese products have been seen at Saigon. But long-term stability is dependent on U.S. aid, now worth some \$200 million a year to Viet-Nam, \$50 million to Laos and \$30 million to Cambodia.



Co-operation in the economic sphere between the respective governments is growing, an outstanding example being the request made by them to the Bureau of Water Resources of the Economic Commission for Asia and the Far East for a survey of the Mekong River for both immediate and long-term development. The Mekong which flows for 2,600 miles from its source in the plateau of Tibet through China to Burma, Thailand and Laos, forming parts of their border, and continuing through Cambodia and Viet-Nam, is one of the world's longest waterways and is comparable with the Mississippi. The report, which was issued recently, has been welcomed—not surprisingly, for its implementation would transform the whole area. Five main projects are envisaged. Costing \$400 million, the first four involve dams at Pa Mong, Kemarat, Phone and Sambor and would provide cheap hydro-electric power. The fifth scheme is for a barrage across the link between the Mekong and the Great Lake of Cambodia, turning the latter into a giant reservoir for flow control purposes.

With rice and rubber constituting 80 per cent of its total exports, Viet-Nam is giving priority to the expansion of agriculture, with particular emphasis on productivity and crop diversification. The rice export trade is being developed again and new rubber plantations planted with high-yield species of hevea. Other promis-

ing crops include tea, tobacco, copra, pepper and sugar. The sugar mill at Hiep Hoa is to be modernized and production increased to 20,000 tons a year and a new mill with a 10,000-ton output is to be built at Tuy Hoa. A £100,000 experimental jute cultivation station is to be established.

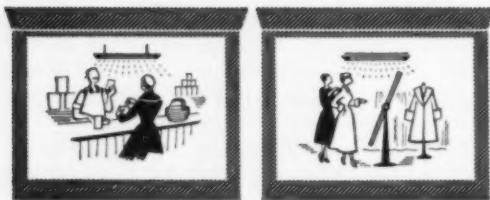
Following the cease-fire in 1954 the partitioning of the country at the 17th parallel presented the Viet-Nam Government with a number of major economic problems. To start with, the country's major coal, tin and zinc resources and its textile, cement, etc., enterprises were in the north; the south was wholly agricultural. A pressing task was the settlement of the 800,000 refugees from the Communists, and this is still in process of solution. At Caisan 100,000 people are to occupy 400,000 acres of land at a cost of £3 million.

Encouragement is being given to light industrial development, especially the processing of agricultural products and the manufacture of essential consumer articles such as paper, cotton thread, silk, jute, tools, cement, glassware and leather. Nevertheless, the country now imports some £90 million worth annually and demand will continue briskly for public works and industrial machinery and agricultural tractors and mechanized equipment. The National Purchasing Centre is buying 175 Land Rovers for use in the anti-malaria programme. To encourage foreign investment the Government have recently offered various inducements—guarantees against nationalization without equitable indemnity, tax exemptions and facilities for the transfer of profits. A £1 million credit is to be devoted to the erection of cheap housing by the Department of Reconstruction and Urbanism. Railway plans include the rehabilitation in two years of the line north from Saigon to Tourane and Hue. New rolling stock and diesel electric locomotives are to be bought as funds permit and new lines laid to link the capital with the delta and the development areas.



Cambodia is also busily improving its communications system, with French and U.S. financial assistance. Scheduled for completion before the end of next year, the new 140-mile-long highway between Phnom Penh and the new seaport of Kompong-Som is designed for heavy traffic and will present openings for sales of

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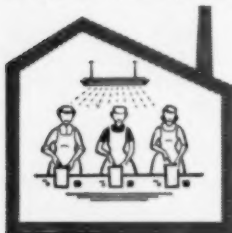


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ECONOMIC PROSPECT

British load-carrying trucks and trailers. The new deep-sea port is being built under the French economic aid programme. It will provide good sheltered anchorage but is sited in jungle country cut off from the interior. A free zone for commerce and industry may be provided in the new town now being constructed there. The capital's airport is being extended.

With an area of 68,000 sq. miles and a population of 4.5 million, Cambodia is primarily an agricultural country concerned with rice, maize, rubber, pepper and tobacco production, cattle raising and forest products. Its fresh water fisheries are important. Although much of the territory consists of dense forest, the present area under cultivation could be doubled. Just being completed is a five-year programme of flood control, drainage and irrigation that has cost around £800,000.

With a view to encouraging investment from overseas the Government recently offered to guarantee foreign capital against nationalization and expropriation for periods of from 10-30 years. Enterprises of exceptional value can claim tax exemptions up to 100 per cent on raw materials imported during the first years of operation.

Laos is suffering, apart from Pathet Lao insurgents in two provinces, from an acute shortage of technicians and administrators and has been following a policy of accepting economic assistance from whatever quarter it is offered. Goods purchased through the International Co-operation Administration have included electrical apparatus, chemicals, iron and steel products, agricultural plant and motor vehicles. France has given aid and Australia has provided £A250,000 for the purchase of road-building equipment. Now in preparation is a five-year programme involving expenditure on public works projects and irrigation schemes and the extension of the road system. At present no proper road communications exist between the north and south of the country. Goods come in to Vientiane, the capital, and northern Laos via the port of Bangkok, are ferried across the Mekong and travel thence by truck. For southern Laos the route is via Saigon or Bangkok. I.C.A. authorities are contemplating the reconstruction of the port of Tourane on the coast of Viet-Nam as a harbour to serve Laos via the Indo-China *route nationale* from Huey to Savannakhet.

Among goods currently in demand are bicycles, small motors, electrical fittings, safes, tinned goods, toilet articles and pharmaceuticals. Last year exports from the U.K. represented 3.7 per cent of total Laotian imports, compared with 2.2 per cent in 1955. Potential exporters might bear in mind the That Luang Fair at Vientiane in November which is attended by people from all over the country. Letters and sales material should be in French, and quotations c.i.f. Bangkok and/or Saigon in dollars.



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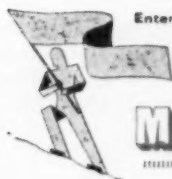
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MARCH OF BUSINESS

ALL CHANGE

TO many people the art of management is indestructible. They look on it as a set of basic skills (equally effective in any circumstances) which may be assisted from time to time by the introduction of new 'tools' but are never actually changed by them.

Whether this widely-held assumption will survive the next decade is another matter. Already there are suggestions that management's newest tools—automatic production, electronic data-processing, cybernetics, operational research—will have the double-edged effect of throwing management itself into a period of change and upheaval, during which some traditional skills will be down-graded.

This forecast is supported by the findings of a three-year research project which has been undertaken at the South East Essex Technical College. It involved an intensive study of current systems of management in 100 local firms.

The smallest of the firms had 100 employees; the largest, more than 30,000. Altogether, they represented 14 industries. Their organizational structures varied tremendously, but as far as management functions were concerned a 'pattern' began to emerge when they were divided into three main activity groups: (1) unique article and small batch production; (2) large batch and mass production; and (3) process production.

The main deductions were incorporated in a paper which Joan Woodward, the college's research director, presented at the Institution of Production Engineers' recent conference on Automatic Production—Change and Control. Among them:

► Pressure on people at all levels of the industrial hierarchy appears to

increase as technology advances, until it reaches its maximum in mass production of the assembly-line type—then it decreases rapidly. This relaxation, together with the breaking down of the labour force into smaller groups and also the fact that the process firm is less concerned with labour economy because of its comparatively low labour costs, makes the industrial relations position very much easier. The implication is that while automation will give rise to the human and social problems inevitably associated with change, in the long run it may solve many of our current industrial labour problems.

► In the industry of the future it may well be impossible to make sound administrative decisions other than on a basis of technical competence. This may shatter the idea that an able administrator can operate successfully in a number of different spheres—the assumption on which many high-level industrial appointments, particularly in the nationalized industries, have been based.

► Top executives in a process firm make many fewer decisions than their counterparts in 'unique article' or mass production.

► As technology advances, management performance becomes easier to measure. This, together with the fact that technical competence is important, makes selection for promo-

tion a much less subjective process.

► In process industry the plant itself constitutes a framework of discipline and control. Most workers are less resentful of authority exercised over them in this way than they are of authority imposed on them by supervisors. Thus advances in technique may change the entire concept of authority in industry.

► The increasing rationalization of the process of making decisions means that any two individuals with similar qualifications are likely to make the same decision when presented with the same set of facts. This will greatly facilitate the delegation of responsibility—for a major obstacle at present is the insecurity of the men who possess the power to delegate.

Miss Woodward summed up her paper by suggesting that developments in technology would eventually produce a different kind of executive personality. The manager of tomorrow would be more analytical than instructive. He would be a functional rather than a personality leader. His authority would be of a different kind. He might have more leisure, for he was likely to be hard-pressed only when things went wrong.



I.P.E. delegates raised their eyebrows when Miss Woodward suggested that there was an "unhealthy

Next Month

EMPLOYEE SHAREHOLDING. A "Business" panel discusses pros and cons, ways and means.

PROFITS UP 1,000 PER CENT. How a small family firm created a mass-market in ten years.

concentration" on human factors. This seemed a little curious at a conference where one-quarter of the group discussions were concerned directly with the effects of technological change on people. It also seemed a little curious from a woman who, in private life, is the wife of the Ford Motor Company's industrial relations manager . . .

★ ★ ★

FASTER BARGAINING

LORD Halsbury's paper at the first plenary session of the I.P.E. conference dealt with 'industrial mathematics'. Having seen criticized for talking 'mumbo-jumbo and balderdash' on previous occasions, he took pains to describe a number of practical applications.

Towards the end of his paper, however, he allowed himself the luxury of a more fanciful—and in some respects more fascinating—example: the use of operational research techniques in the broad field of industrial relations. He said:

"Modern management techniques could be *foci* for a new spirit in the community by enabling decisions to be made quickly and on sufficient information. The language and course of many wage negotiations, for instance, seems increasingly out of keeping with the techniques available for solving them . . . this year's wage claim is being tabled while last year's is still being settled. Yet maximizing the wages distributable over a period ought to be a straightforward calculation in econometrics.

"It would be premature to sell these ideas to either side of the bazaar-gaining table as yet. The most we can do is to set the rest of the community a good example by exploiting new techniques of management as hard as we can in the belief they will spread . . . for rationality, like appetite, grows by what it feeds on."

★ ★ ★

This year's Business Efficiency Exhibition drew bigger crowds than ever before. Total attendance during



This month's cover picture shows a mixing operation at one of the potteries of Doulton and Co. Ltd. Today the age-old materials of the potter are still finding new applications in many fields—including the production of vital components for use in atomic energy plants.

its ten-day run was 135,000—an increase of at least 50 per cent on the previous record for any similar exhibition held in Britain. More than 1,000 of the visitors came from overseas.

ROUND-THE-CLOCK

LANCELOT Spicer, D.S.O., M.C., chairman of the big firm of paper merchants, suggested a way to increase the productivity of Britain's light industries when he spoke at a lunch meeting in Manchester recently. It was simply that they should follow the lead of heavy industry and adopt round-the-clock shift working.

He pointed out that capital expenditure on plant had become so heavy that it was now an "economic necessity" for machines to work longer hours. Yet light industry plant was often employed for only 40 hours a week out of the 168 which were available.

His suggestion applied to clerks as well as factory employees. For the increasing mechanization of office jobs meant that there was a heavy investment per worker even without taking into account the high rents of business premises.

Mr. Spicer admitted that his suggestion, if adopted, would cause a "social revolution". All-night trans-

port would become a necessity; shops, restaurants and cinemas would also face radical changes. But the initial dislocation would be justified in the eyes of the public, he claimed, by the resulting overall reductions in prices.

★ ★ ★

Since the inauguration of a drive-on-drive-off ferry service between Tilbury and Antwerp about eight months ago, an increasing number of British exporters have been transporting goods by road—and without intermediate handling—to destinations in Belgium, Holland, France, Germany, and Eastern Europe. Among them are the Marconi Wireless Telegraph Co. Ltd., who recently made use of this service to send a demonstration van to Yugoslavia, where it appeared at the Zagreb trade fair before starting a four-month tour of the country.

★ ★ ★

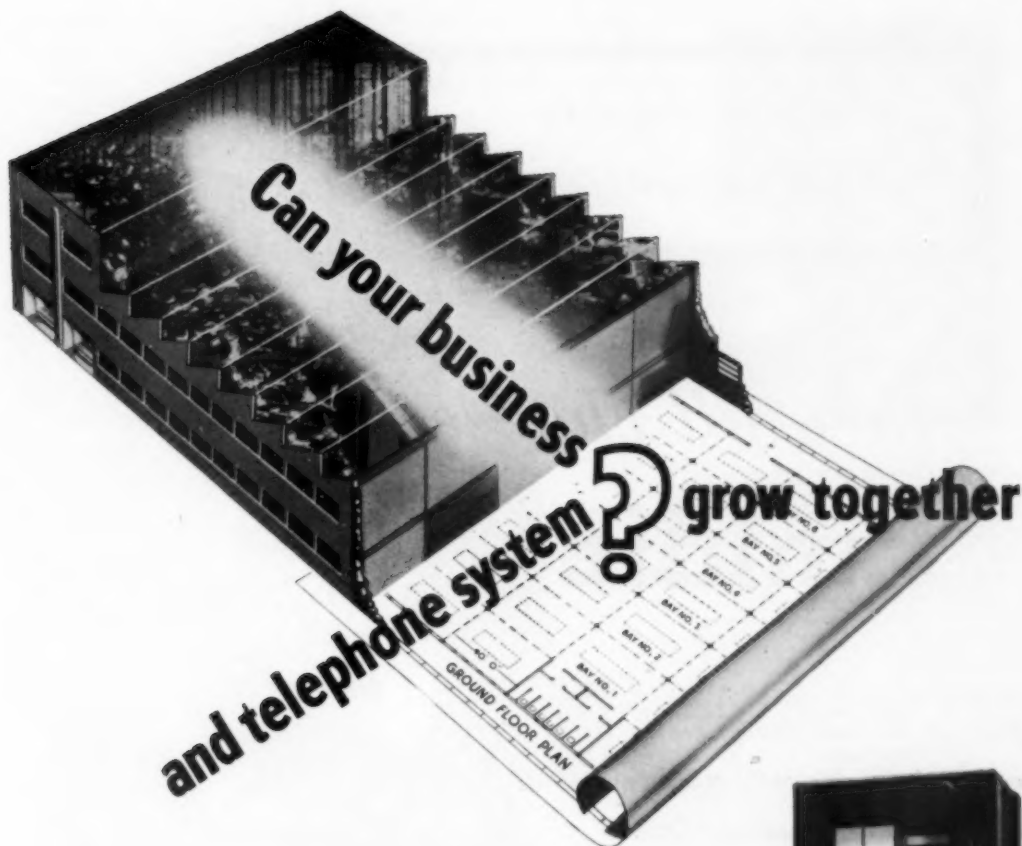
DULL BUT GOOD

THE International Labour Organization is one of those Geneva-based bodies which seems to do good by stealth. Rarely, if at all, do business executives hear anything about its activities, yet it may be said to symbolize the world's conscience about working conditions in industry.

At its 40th annual conference, for instance, the ILO, among other things, adopted resolutions on: The abolition of concentration camps and deportation of national minorities; methods of wage payment; debt bondage and serfdom; abolition of anti-trade-union laws; mine safety; women's work; workers' education; hours of work; disarmament; the testing of nuclear weapons; and the use of nuclear energy for peaceful purposes.

For all the lack of publicity accorded its activities, membership of the ILO seems to carry great prestige. Among the 900 delegates from 73 member countries and 10 territories were no fewer than 30 Ministers of Labour.

With the exception of one or two speeches, the conference, which took



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place in Geneva's sumptuous Palais Des Nations, had an almost magisterial dullness. The proceedings lasted some three weeks and most of the speeches seemed twice as long, abounding as they did with platitudes and what Cyril Connolly has called "mandarin phraseology". Many of the sessions were attended by no more than a handful of delegates who came and went casually in the middle of speeches. The keenest interest was shown by delegates from underdeveloped countries which are still striving for conditions long since taken for granted by the richer countries of the West.

★ ★ ★

"At the moment the United States is Britain's largest single market. Nevertheless many of us in industry are apt to make the mistakes of judging our results by the previous year's performance. What we should do is to weigh the results objectively against the potential for our goods in this market."—Sir William Rootes, on returning from a 30,000 mile Dollar Export Council tour.

Letter

Sir,

Your article "The Way to the Top" in the July issue of *BUSINESS* will undoubtedly stimulate a great deal of interest, and as one of the 'types' under discussion I would like to put forward some of my own views.

The discussion by the panel covered an extremely wide field but it seems to me that one of the most important questions, namely that raised by Mr. Spencer concerning personality, was not dealt with fully.

I feel it is essential for a potential senior manager or executive to have guidance in both the cultural and social spheres, as only too often it has been found that the assurance gained from knowledge and ability does not necessarily produce a confident personality. A capable executive must surely be as 'at home' in the workshop or the boardroom, and the ability to adjust oneself temperamentally and

AUGUST, 1957

PEOPLE PRODUCTS PLACES 1



NEW POST CREATED—Kraft Foods Ltd. have created the post Director of Marketing for W. B. Chalmers, 41, ex-Hedley management trainee, who has joined them from the Beecham Group. It means they are going all-out for direct sales to the retailer—quite a policy change.

BEAT THE BANDIT!—This case provides a new anti-theft device for bank messengers and other cash carriers. Inside is a steel-lined safe fitted with a piercing siren. When the strap tying bag to bearer's arm is wrenched, the alarm can be heard for 250 yards above the noisiest traffic. Makers: Security Products Ltd., London.



PERSONAL INTEREST—V.I.P.s rarely have any real interest in the functions they grace. Not so Lord Chandos, who opened the best-ever (133 exhibitors, 135,000 visitors) Business Efficiency Exhibition on June 17. For Siemens-Edison-Swan, members of his A.E.I. Group, have just joined the Office Appliance and Business Equipment Trades Association who organize the B.E.E.

socially to achieve this object is most difficult to obtain.

It would seem that the American system of reciprocal entertaining between junior and senior executives is an excellent solution.

I fully agree with Mr. McLean that men must be exposed to the kind of forces and situations which will mould their personalities for bigger responsibilities. The onus for this is definitely on the senior management—it is possible for them to give their juniors many opportunities to gain practical experience of decision- and policy-making.

Once a man has gained a useful knowledge and background of his company's policies it would be relatively easy for a senior executive to refer a situation with all the relevant facts to one of the junior men, with the request that he reports back within a given time with his solution.

If the solution is a good one then it can be adopted and the junior will gain confidence from this fact. Any significant point which the junior overlooks, or any wrong decision which he makes, can be immediately corrected by the senior executive concerned and the junior man will have the example of seeing actual policy in action to illustrate his senior's correction.

This method would not only have the advantage of preparing the junior man to make policy decisions himself, but it would also help to overcome any personality difficulty that exists by virtue of their relative status in the organization.

Dealing with your request for readers' opinions, I do think that the importance of reading of any sort cannot be over-emphasized. Unfortunately, technical reading on the questions of senior management is rarely presented in an easy-to-read or interesting way. I think there is a very real need for a more comprehensive literature on real problems such as those frequently dealt with in your admirable publication.

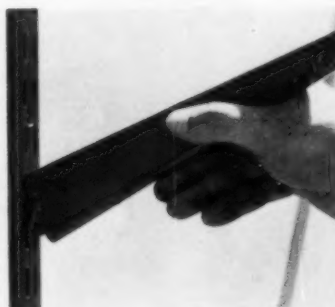
P. E. CLARK,

*Davis & Soper Ltd.,
London, E.C.3.*

*(More letters on this subject will
appear next month.)*

PEOPLE PRODUCTS PLACES 2

QUICK RISE —Jacques Chapman, 36, joined Fonadek (Branston) Ltd. only four years ago as sales manager. Within three years he had reached the boardroom. Now he is appointed managing director of this fast-moving, six-year-old firm.



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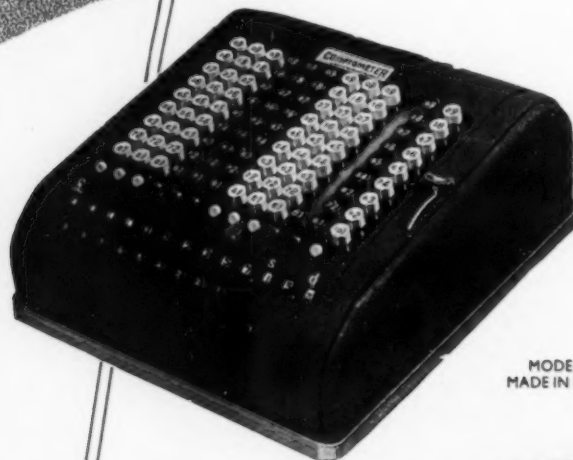
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TALKING POINTS

THE KEY MAN

What Happens If He Goes?

"An article in the June issue of BUSINESS (page 63) described the barnstorming sales methods which have helped John Hayward, managing director of Polythene Ltd., to build up a prosperous export business. One reader thought that he detected a major weakness in Mr. Hayward's set-up. He wrote:

Sir,

I appreciate that Mr. Hayward is obviously a very capable businessman, but I would be most interested to learn what steps he has taken to ensure that his company would be able to carry on at the same level of prosperity—which is so essential for the security of his employees—if he were to die or suffer a prolonged illness.

As I see it, all the company's overseas customers are impressed and probably amused at Mr. Hayward's methods. But is there anyone else in the organization who can fly a 'plane, anyone who can step in and give the same service, or approximately the same service, as Mr. Hayward is giving?

W. R. G. KERR, C.A.

Secretary.

*The United Wire Works Ltd.,
Granton, Edinburgh.*

The only person who could answer these questions satisfactorily was Mr. Hayward. This is how he replied:

Sir,

The article published was a description of my method of building the business in its early days and did not deal with the present method of running it.

What happens if I die? Believing that no one is indispensable, it has been my policy from the commencement of the business to make myself expendable. Proof that my policy

had succeeded occurred some six months ago, when for a period of just over three months I was seriously ill, and for the first two months had no contact with the office whatsoever. During this period every customer re-ordered and every order was duly executed.

I think this result was achieved by my basic policy, which in essence comprises four principles:

1—I believe in keeping my staff fully informed. To further this I carry a pocket recording set on which I make a detailed report of my visit to each customer. This is played back to all key personnel, both administrative and technical, to give them as complete a picture as possible of my policy towards each customer and of his particular circumstances and requirements.

2—Correspondence and copies are not filed until they have been reviewed and signed by three persons—my confidential secretary, my accountant and myself. My secretary and accountant are in fact well known personally to all customers.

In a 'one man business' an essential is a reliable confidential secretary. My solution to this problem was to keep it in the family, and my mother-in-law has been my secretary almost from the inception of the business. You will appreciate that she has incentives other than those which a normal secretary (no matter how loyal or stable) could have! A second string to my bow is for my personal accountant to spend one day a week in my office during which he familiarizes himself with the current position of the business. In this way there are two people who, with the aid of the technicians, are quite capable of running the business.

3—Over the years I have taken my technicians to meet all the customers, who are now quite satisfied to deal with them if I am not personally available.

4—On occasion, for a period of four months I deliberately have no personal contact with a particular customer, nor do I deal with any administrative or technical matters concerning him. This phase, which comes under the heading of consolidation, is initiated after the customer has been doing business for about 12 months; thus the customer eventually deals with the organization and not with me personally.

A break-down of our customers shows that 60 per cent have been doing business for over five years, 30 per cent for less than two years. Eleven per cent of the customers in these two groups are in such places as Australia, Japan and the Philippines etc., and have not yet been visited.

Regarding the 48-hour technical service, in the event of my demise, about 90 per cent of our European customers are in the main centres of industry and are accessible within a few hours. The other 10 per cent can easily be reached by the technicians within 48 hours by normal transport.

I have to admit therefore that barnstorming in my own 'plane (apart from being more convenient and economical than normal transport) is now more of a personal liking than a strict necessity. But originally it created an added interest and was one of the means by which my product was given the opportunity to prove itself.

As far as my own particular business is concerned, "the commando tactics" are finished. But I can think of one or two industries where (if they are to survive in the export field) such methods would certainly be beneficial. In this I refer not to 'one man businesses' but to some of the larger concerns, where these methods would not increase sales overheads but reduce them.

*J. HAYWARD,
Managing Director.*

*Polythene Ltd.,
London, S.W.1.*

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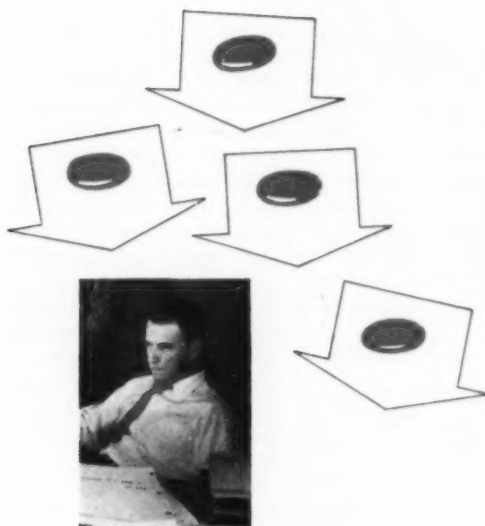
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Peace of mind—freedom from worries—that is what the new drugs offer harried businessmen. But at what price is tranquillity bought?

TRANQUILLIZERS

Can They Help Executives?



IF a stranger approached you, held out a tablet, and said: "Here, take this. It will make you feel better," the chances are you would investigate pretty closely before accepting. But if he added: "It's a tranquillizer," most people would probably be tempted to try one.

Why? Because the word 'tranquillizer' has started doing the social rounds, just as 'lifemanship' and 'U and Non-U' went round. It is the OK word of the moment. Newspaper columnists use it. Advertise-

ments use it. Wild and sensational press articles talk about 'happy pills.' It is not an exaggeration to claim that the impression is widespread that somewhere, in the form of a little

By STEPHEN ROSE

tablet, there is a panacea for the strains and stresses of urban life in the 20th century.

A newspaper columnist writes: "After 20 years in the U.S., and being slightly neurotic, I arrived in

Britain with 50 Miltown pills in case of emergencies or nervous stress. Miltowns are the great tranquillizers used by my friends on Broadway, in Hollywood and in the newspaper business . . ."

It is by such insidious passing references that the great tranquillizer myth has been built up. Tranquillizers have never been advertised to the public in this country. Yet hardly an adult person has not been made aware somehow or other that they exist. Difficult decision to make? Preparing for a conference? Got to make a speech? Asking the chairman for a rise? For these and all other tense or straining events in everyday life, the 'tranquillizer' seems an ideal remedy. Its very name promises to make us all the level-headed, rational beings we would like to be. It must be worth trying.

That's the theory. That is how the general public has learnt to see the new drugs. But in fact, such a picture is at startling variance with

the true action of the drugs, and even more with clinical indications for their use.

To start with, there is no point at all in talking in general terms of 'tranquillizers.' Over 20 chemically-distinct compounds have been produced, and there is no sign that the flood is drying up. Each of these compounds has distinct characteristics, good and bad. The one may induce jaundice, the other muscular weakness. Yet a third 'insulates' the patient against the real world. Some upset physical co-ordination. Some depress to the point of inducing suicide. Others are comparatively harmless. None is entirely free from possible toxic or side effects—Parkinsonian symptoms, liver damage, skin rash, palpitations, etc.

What Are They?

Clinical experiments show that the new chemical compounds can alleviate anxiety states and neurotic conditions without inducing the sleepiness caused by established drugs (barbiturates, bromides). So much they have in common. But little else. Here is a brief guide to the four main 'families' of new tranquilizing drugs:

► **RESERPINE.** This was the first compound to be chemically produced, although a basically similar substance has long been used in the Far East. Derived from powdered snake-root, a tropical plant, it was first

isolated in Switzerland in 1952.

Reserpine was soon found to be effective for certain types of psychiatric patient, but liable to have dangerous after-effects. A number of cases have been reported where it led to acute depression and suicide. In other cases, where it was given to out-patients, it was responsible for developing minor neuroses into major ones. It is now used very little, and then mainly in mental hospitals.

► **CHLORPROMAZINE.** It was also in 1952 that the possibilities of this compound (first produced in France in the war years) began to be appreciated. Though planned as an anti-emetic, its useful effect on psychotic patients was reported in 1954, and under the trade name *Thorazine* it began a spectacular career in the United States. A year later it appeared in Britain as *Largactil*, and has been widely used here in hospitals and general practice.

It was heralded as a wonder drug. It suppressed anxiety and fear, and produced 'miracle' cures in patients who, for many years, had led useless and painful lives in institutions. Mental patients of a violent kind were made amenable to psychotherapy under its influence (because it sedated without numbing mental alertness). Boosted by skilful promotion, it soon became one of the most commonly prescribed drugs in the U.S.

But its introduction in Britain was

closely followed by the first adverse or cautionary clinical results from the other side of the Atlantic. A definite incidence of jaundice was reported to have been associated with its administration. Cases of skin reaction and, above all, of damage to the liver, were reported, together with minor symptoms such as dizziness, palpitations, lethargy, abdominal pains, etc.

► **MEPROBAMATE.** This is the most recently discovered tranquillizer, and has only been available in Britain since last year. It is the chief drug used for the relief of minor anxiety states. Its action is generally mild compared to the others, and until a very short while ago it was thought that it could be administered for an almost unlimited length of time without producing either addiction or habituation. Side-effects include muscular weakness and some skin reactions.

Introduced in the U.S. under the name of *Miltown*, its name caught on to such an extent, that unpleasant ridicule became attached to it. It became a favourite subject for jokes and cartoons. But with *Miltown*, tranquillizers found a vast market outside medical prescriptions. Self-medication with this drug grew into big business. In the first nine months of last year, over 35,000 million tablets of meprobamate tranquillizers were sold in the U.S.—half of them for use in everyday life by otherwise normal people.

► **BENACTYZINE.** This Scandinavian tranquillizer is sometimes called an 'insulating' drug. If taken in sufficient quantities, it erects an invisible barrier between the patient and the real world. Patients develop a couldn't-care-less attitude, become absent-minded and lose power of concentration to a considerable degree. This makes it unsuitable for self-medication, and especially unsuitable for harassed people who nevertheless have to be able to concentrate.

► **OTHER COMPOUNDS.** A wide range of other compounds are sometimes classed as tranquillizers, notably

The executive must ask himself: is relaxation a good thing? It has not been proved that it aids performance. It may, indeed, remove a degree of tension which the human mind needs to function at its highest degree of perception

methylpentynol, mephenesin and barbiturate compounds. But they have a radically different effect from those under discussion here.

From this brief summary it is obvious that meprobamate is the only drug that is at all applicable to normal people. Together with all the others, it is available freely from chemists, although the council of the Pharmaceutical Society of Great Britain asked for them to be restricted over six months ago, and warned chemists not to sell the drugs indiscriminately. It is expensive, costing about £1. 2s. for 50 tablets. It is made by two companies in Britain and is sold under two brand names (*Miltown* and *Equanil*).

Pros and Cons

The drug is there. The question is: Should it be used? Medical opinion is quite firmly against its use for self-medication. But it is only fair to state that medical opinion is against all forms of self-medication. On the other hand, it has been said by eminent authorities that we should not play around with these drugs until more is known about their effects. One psychiatric consultant has even gone so far as to say that he doubts whether the general practitioner—let alone a non-medical man—yet has enough information to be able to prescribe tranquillizers with any certainty at all about their effect.

Yet to the layman, meprobamate seems an eminently 'safe' drug. Certainly in the U.S. there is no stigma attached to those who openly proclaim they use it. It is thought there that the taking of a tranquillizer for 'nerves' is on a par with taking aspirin for a headache. One reason why there is no moral stigma attached to the drugs is because they do not act like a 'pep' pill, and cannot stimulate. That is also the main reason why tranquillizers are not yet restricted in Britain, whereas amphetamines and methylpentynol are no longer freely obtainable.

In a recent survey of 700 U.S. executives, carried out by the Research Institute of America, it was found that 30 per cent had used

TRANQUILLIZED EXECUTIVES

- A recent survey of 700 U.S. executives showed that 30 per cent had used tranquillizers at one time or another. 72 per cent reported that the effect on their job was 'good'
- But 1,200 out of 8,200 West Coast patients treated with the drugs felt dissatisfied with their effect, "for it seriously impeded their contribution to their company"
- An experiment with rats showed that tranquillized animals may lose their sense of danger under certain conditions. This means that with the drugs you may feel you are doing fine when this is not the case
- No drug can produce executive ability where none exists. But relaxation by drugs may help some people get on with the job when they are distracted by anxiety or tension



tranquillizers at one stage or another, and that 15 per cent were actually taking them at the time of the survey. Seventy-two per cent reported that the effect on their jobs was 'good.' The drugs made them feel relaxed, eased pressure, aided sleep and improved personal relations.

But quite different reactions are recorded by two West Coast psychiatrists who treated 8,200 patients, mainly of executive status, suffering from minor emotional disturbances. There, 1,200 patients felt dissatisfied with tranquillizer treatment "for it seriously impeded their contribution to their company or their value to their group. They could see no good coming from the idea of everyone feeling completely placid." Unfortunately, this study does not state which types of tranquillizer were used. Other remarks in the paper make it seem unlikely that few, if any, of the patients concerned were treated with meprobamate.

In fact the fault mainly to be feared with this drug is quite the reverse from that stated in the report. Far from finding that it impairs their work potential, patients come to lean upon it as a means of keeping up to scratch. It is true, of course, that a person who does not possess an outstanding degree of executive ability to start with, cannot hope to find it in a drug. But what talent a person has got may be impeded in everyday life by worries, emotional upsets, strains, tensions, overwork, etc. Chemically-induced relaxation may permit an executive to turn in a 100 per cent performance, where worry might restrict him to a mere 70 per cent of his potential. It is undoubtedly the belief that this is so that has led to such a wide adoption of tranquillizers in American business life.

But how many of these drug-minded executives would go on taking the tablets if they had read that "many

IN AMERICA . . .

- *First commercial tranquilizing drug was marketed in 1954*
- *Tranquillizers are now in sixth place among drugs most commonly prescribed*
- *Excluding repeat prescriptions, it is estimated that 30 million prescriptions for tranquilizers were written last year*
- *In the first nine months of 1956, one tranquilizer alone sold 35,000 million tablets. Another currently sells 50 tons a month*
- *50 per cent of total sales are consumed by perfectly normal people seeking relief from day-to-day stresses.*



patients become quite dependent on meprobamate and find it difficult to get along without it"? This was written in April, 1956, by Dr. F. Lemere, of Seattle, in a letter to the Journal of the American Medical Association, in which he modified his previous opinion that the drug was not habit-forming. In this letter, which is vital from the executive point of view, Dr. Lemere states:

"Addiction to a drug is characterized by (1) psychic craving based on euphoric effects; (2) building up of tolerance requiring increasingly large doses to produce the same reaction; and (3) withdrawal symptoms when medication is suddenly stopped. Meprobamate is not habit-forming in respect to any increase in tolerance. . . . Withdrawal symptoms are, however, sometimes experienced. Patients occasionally describe a feeling of nervousness and 'the jitters' above their premedication level of tension when they have been unable to get their usual dose of meprobamate.

"A psychological craving for the drug is undoubtedly created in certain patients. . . . In most cases this does not seem to be harmful. In six of more than 600 patients for whom I have prescribed meprobamate, however, the treatment had to be dis-

continued because of excessive self-medication. . . .

"One cannot but view with disquietude the unparalleled popular demand for meprobamate medication. Perhaps it is not so much a reflection on the drug as on contemporary civilization that such a large section of the public is so much in need of a tranquilizer. . . ."

Other Dangers

This danger of 'psychological' addiction which Dr. Lemere stresses is a major point to be considered. Everyone has at some time or another felt the need to find some artificial means of relaxation or stimulation. That is how many people start smoking. Others satisfy the need with greater or lesser quantities of alcohol. Recently, mild hypnotics based on methylpentynol came on the market, and immediately made such an impact on the general public that they had to be placed on prescription to prevent undisciplined self-medication. The argument for meprobamate is that it is less habit-forming than alcohol or tobacco, and less toxic than other popular hypnotics, stimulants, etc.

But it has other dangers which

must be considered, together with completely unknown long-term effects which may well be revealed as unpleasant, and dangerous, when clinical trials of greater length have been held. Since meprobamate works by affecting a little-known sector of the brain (the hypothalamus) in an unknown manner, many people will feel that this drug is tampering with something that is better left alone in the present state of medical knowledge.

The dangers of addiction and possibly harmful effects are not the only problems which must be faced in this matter. The executive must ask himself: Is relaxation a good thing at all? With benactyzine, as we have said, the real world becomes remote, a couldn't-care-less attitude is engendered. Why should not the manifestations of meprobamate be only the same sort of thing in a less acute form? It has not been proved that the extra relaxation that the drug brings is good for executive performance. It may remove inhibiting factors and thus aid concentration. But it may also remove the degree of tension which many people believe is necessary for the human mind to function at its highest degree of perception. With tranquilizers, in fact, we feel at our best. But are we?

Much research remains to be done on this subject, and the U.S. government, alarmed at last about the grip that tranquilizers are exerting on the population, has allocated an initial grant of 2 million dollars towards the first systematic, large-scale investigation into the effects of long-term administration of these drugs. Meanwhile, several thought-provoking experiments have been recorded:

1—A research team at the University of Michigan reported recently that a group of 138 college students who took meprobamate did slightly better in mid-term examinations than a control group of 138 who did not.

2—A University of Chicago psychologist found that meprobamate given to newly-hatched ducks impeded a phenomenon known as 'imprinting.' This process makes the

baby duck (and also the young of other animals) instinctively follow the first large object that moves near it shortly after hatching out—usually, of course, the mother.

3—Tests have been made in which a rat is taught to associate a buzzer with personal danger, i.e. an electric shock. When the buzzer is silent, the rat works by pressing against a bar, to earn the reward of a drop of water. When a buzzer sounds, the rat will at first ignore it. But when it has learnt to associate the buzzer with the shock that follows, it will stop 'working' when it hears the signal and crouch back until the shock has come.

Under the influence of reserpine, test rats carried on working, in spite of shocks. In other words, the drug blocked off that part of the brain that was perceptive to danger signals. Tranquillity was, in fact, dearly bought.

4—At the Parsons State Training School, Kansas, 10 mentally-retarded children were taken through a course of chlorpromazine while receiving instruction. They were compared with a control group matching in age, sex and I.Q. At the end of a 60-day period, the I.Q. of the control group had increased by an average of 2.5 points. But the tranquilized children had gained an average of 10.4 points.

These experiments are most inconclusive. But they serve to illustrate some of the main hopes and fears attached to tranquilizers.

It is beyond dispute that in the

treatment of mental patients the new drugs offer something that has not been available to medicine before. It seems clear that they will eventually find a well-determined place in psychotherapy. On the other hand, while considerable advertising and direct mail pressure is put upon medical practitioners to use tranquilizers for minor complaints in everyday practice, it is far from clear whether this is a good thing.

Caution Urged

On all sides, stern warnings are to be heard from medical authorities:

"New drugs, as well as fresh reports, are appearing almost in a torrent; there are all too many eddies of opinion in different stages of emergence, evolution and recession; and all except the specialists are likely to find the waters too choppy for navigation. The manufacturers are to blame if, in their eagerness for sales, they release drugs for general use without adequate clinical trial. Specialist clinicians can be criticized for being over-impressed by favourable appearances which may be in large part due to suggestion and for hurrying into print." (British Medical Journal, leading article, April 28, 1956.)

"Psychiatrists are... concerned about the apparently widespread use of the drugs [tranquilizers] by the public for the relief of common anxiety, emotional upsets, nervousness and the routine tensions of

everyday living. It is reported that 35 million prescriptions for the drugs will be written in 1956 and a market research firm states that three of ten compounds prescribed most frequently by physicians in 1955 were tranquilizers. . . . Casual use of the drugs in this manner is medically unsound, and constitutes a public danger." (Statement by the American Psychiatric Association, July, 1956.)

"While these drugs are not advertised to the public, a widespread public knowledge of them has been created by newspaper articles and there is a substantial demand for them otherwise than on prescription. The indiscriminate use of such drugs is, in the council's opinion, against the public interest. . . . Pharmacists are advised not to display them or to supply them unless satisfied that they will be taken on medical advice." (Statement by the council of the Pharmaceutical Society of Great Britain, August, 1956.)

All of which paints a vastly different picture of tranquilizers than is presented by the Sunday newspapers' notion of 'happy pills.' The drugs are certainly no automatic remedy for everyday fatigue and emotional bother. They can backfire with a vengeance.

But all this welter of claims and counter claims (and some of the supposedly ethical literature on tranquilizers makes one think the Golden Age is back) should not make us lose sight of the fact that meprobamate

Continued on page 108



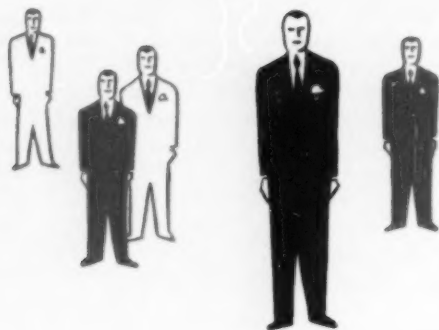
Tranquillizers are not habit-forming. But they present the danger of 'psychological addiction'—the feeling that when not taking them you are below par. After a course of treatment, some people are more nervous than before



"Perhaps it is not so much a reflection on the drug as on contemporary civilization that such a large section of the public is so much in need of a tranquilizer . . ."



How a Quick-growing Firm Build Their Management Team



Rael-Brook Ltd. are a young company run by young people. The executives, it is claimed, 'grew of their own accord' during a period of exceptional opportunity. But their development as a team owes much to the personal qualities and distinctive policies of one man

EXECUTIVES develop quickly in an up-and-coming firm. The management have so many opportunities to bring executive talent to the surface—and to use it while it's fresh.

"The only way to find out what a man can do is to let him do it. When your business is expanding rapidly you can afford to 'experiment' with people who would normally spend 10 or 15 years in humdrum jobs, waiting for a superior to move up or move out.

"You don't have to bring a good man on (or maybe hold him back!) by giving him responsibility in small doses. Pretty soon there's an opportunity to put him in a big job and tell him that he's expected to make it bigger. Either he can or he can't; either he does or he doesn't. You find out quickly.

"My belief is that the only firms which find it difficult to produce the right men at the right time are those who haven't anything very exciting to offer them."

Thirty-five-year-old Harry Rael-Brook speaks with some authority on the subject of developing executives under 'hot-house' conditions. In a short time his own firm have set up the kind of management team that is generally evolved over a period of many years.

It was only nine years ago that Harry Rael-Brook and Graham

Hothouse for Executives

By PETER SPOONER

Rael-Brook raised the modest sum of £800 and set up a small textile business in the basement of a house in south-east London. Yet today Rael-Brook Ltd., the originators of the crease-resisting poplin shirt, are a public company with three factories, 1,000 employees and an annual turnover of £1,500,000.

The team of executives which they have evolved is an unusually young one—the average age is 30. But this is not, it seems, the result of a pre-determined policy, or even an indication that Harry Rael-Brook dislikes the idea of employing men who are older than himself. "When we began to need executives," he explains, "we looked, logically

enough, at the people we had already got. Most of our key men today joined the business when it was pretty small. They have grown with it." Nevertheless he adds, almost as an afterthought: "I doubt whether many older men could have stood the pace."

Mr. Rael-Brook entered the textile trade at a very early age. For several years he worked on his own as a merchandiser.

At 25, he took the line that his creative 'urge' could be dealt with effectively by developing the line of business in which he was already engaged; by moving into a field where merchandising an idea was just as important as merchandising products. And

that, in effect, was the beginning of his present enterprise.

In 1950 the company launched their 'Eye-Appeal' shirt, which had a good reception. Three years later came the nylon tricot shirt, a novel fabric which effectively undersold all other nylon shirts on the market. But it was the introduction in 1955 of the *Toplin* shirt—Britain's first no-iron cotton shirt—that boosted the company to their present prosperity.

It would be romantic to suggest that the secret of crease-resisting cotton shirts was discovered by Mr. Rael-Brook and his associates in a makeshift laboratory. In fact, the basic know-how was already available. The 'creative act' was simply that he recognized its commercial possibilities, and that he was prepared to pursue them on a shoestring budget.

To some extent the facts support Mr. Rael-Brook's statement that "executives grew of their own accord." But the growing process was certainly accelerated by his policy of keeping the development of the executive team just a little ahead of the development of the business. Functional posts (export sales manager, for example) were created at a time when, strictly speaking, the business was not large enough to justify them; when Mr. Rael-Brook could in fact have handled their duties himself. In this way the new men were presented with a challenge; to establish their positions they had to assist materially in the expansion of the company.

For those who joined the company in the early days there were big opportunities. To give only one example, the warehouseman at the original factory became warehouse manager in 1952, buyer in 1953, merchandising manager in 1954 and general manager of administration in 1956. This year he was promoted to the board. His age is 30.

How does Mr. Rael-Brook decide that a man is going to develop in this way? His answer is that he doesn't and can't. Experience has convinced him that trial-and-error is the only method of selection which produces good results.

To support this, he quotes the

following example. Two men, previously employed at a fairly low level, were given responsible executive jobs. Mr. Rael-Brook was sure that one of them would make the grade, but not so sure of the other. In fact, these positions were reversed. The 'cert' had a mental breakdown; the 'doubtful' put on a stone in weight, and also made a substantial contribution to the company's prosperity.

To be effective this selection policy demands a certain degree of ruthlessness. Whenever a man is offered a big job, he is warned of the consequences of failure; obviously it would be impossible for him to return to his old position. At the same time it is equally obvious that a man of the

right calibre will automatically accept the challenge on these terms.

The only credit which Mr. Rael-Brook claims for himself is the ability to get the best out of his executives. He also says that great pains are taken to establish a 'climate' in which they can find their feet as quickly as possible.

"The important thing," he explains, "is that a man should make mistakes. It's the way he can learn. So I go to a lot of trouble to convince each of them personally that he has the *right* to make mistakes—that one mistake isn't a failure and doesn't mean that he will be thrown out.

"It's the fear of making mistakes which generally prevents a man from



The Rael-Brook Philosophy

► My belief is that the only firms which find it difficult to produce the right men at the right time are those who haven't anything very exciting to offer them.

► The ability to perform prodigious quantities of work is less impressive than the ability to 'live with the job' and find this way of life intensely satisfying.

► It's the fear of making mistakes which prevents a man from using his full capabilities. The firm benefits if I can break down that fear.

► A managing director should not have specialist qualifications. They would narrow his outlook, give him an it-can't-be-done bias.

► The man who has a second-class brain and uses it fully is a greater asset to a business than the man who has a first-class brain and uses only a portion of its capacity.

► If there is an element of 'toughness' inside the organization, the executives are better equipped to deal with awkward situations outside it.



TV advertising is one of the things which Harry Rael-Brook controls personally. "In a growing firm," he says, "publicity must be a top-level job"

using his full capabilities. The firm benefits enormously if I can break down that fear.

"But if a man has the right to make mistakes he must also have the ability to enjoy real successes."

Mr. Rael-Brook insists that it is his policy to employ men with better brains than his own. They, after all, are specialists; he is not. Nor does he believe that a managing director should have technical qualifications. These would narrow his outlook, give him an it-can't-be-done bias. A business has to run on a mixture of commonsense and imagination; the man at the top needs the type of mind which instinctively recognizes the possibilities of a new idea, rather than the difficulties.

One of the most difficult tasks for a man in Mr. Rael-Brook's position is to shed more and more of his personal responsibilities as the business develops.

A sharp division of responsibility occurred in the early days of the enterprise when it was decided that he should restrict his attention to

merchandising and that his partner should look after production matters. One of the aims has been to establish a strict customer-and-supplier relationship between the two sides of the business—one which is more ruthless, in some respects, than the usual relationship between independent companies. For it is easy, Mr. Rael-Brook thinks, to become too complacent about the value of teamwork; to go so far in understanding the other man's point of view that he is no longer kept on his toes. Moreover, if there is an element of 'toughness' inside the organization, the executives are better equipped to deal with awkward situations outside it.

Personal Touch

Mr. Rael-Brook gives his executives as much autonomy as possible in their own fields. But there are a few key activities which he still directs personally. One of them is buying and selling—he strongly opposes any suggestion that these functions should be handled separately. Another is advertising.

When a business is expanding rapidly, it is essential, he believes, that all forms of advertising should receive the personal attention of top management. He regards his company as being in direct competition, not only with other shirt-makers, but also with all manufacturers of nationally-advertised goods which are trying to attract a share of the

'housekeeping' money. Although Rael-Brook's advertising budget is one of the largest in the textile trade, it is small in comparison with the budget of (say) a washing machine manufacturer. Therefore the company must battle continuously to get the maximum value from it.

Mr. Rael-Brook devotes a lot of time to personal liaison with the company's press and T.V. advertising agents. This means liaison not only with account executives but also with the people who are responsible for the execution of ideas—layout artists, copywriters and film animators. He has great confidence in his ability to communicate his own enthusiasm to others.

His main weakness, he feels, is in day-to-day administrative work. As his commitments in this respect have increased considerably during the past few years, he tries consciously to develop a capacity for 'organized thinking'. It is important, in his opinion, that a businessman should be able to 'sectionalize' his mind and thus concentrate exclusively on one problem at a time.

He also believes that the ability to shed information is even more important than the ability to absorb information. ("A mind used as a filing cabinet has a limited capacity for creative thinking!") What he has tried to develop in himself is the ability to examine a situation, extract the essentials, make a note of them—preferably in writing—and then for-

Continued on page 109

"You can test a process in the laboratory or in a pilot plant but the only way to prove that it works is to put it into mass-production," says Mr. Rael-Brook. Today his manufacturing experience is being sold to firms in many Continental countries



'Business' Looks at

The Progress of New Town Firms



By JOHN A. ASH

Many of the firms who have set up factories in New Towns have by now got over most of their teething troubles. What advantages have they gained? What problems still confront them?

THE first New Town was designated in 1946. Today there are 15 of them, accommodating some 250 firms with a total of 36,000 employees. When they are fully developed, it is expected that they will provide homes for more than 420,000 people.

Eight of the towns—Basildon, Bracknell, Crawley, Harlow, Hatfield, Hemel Hempstead, Stevenage and Welwyn Garden City—lie in a ring round London's Green Belt. They are not meant to be dormitory towns for London's workers, but have the specific purpose of stopping the growth of the capital at the expense of the surrounding country, by enabling some of London's industry to move from cramped quarters to more spacious areas beyond the Green Belt.

Three New Towns in the North of England—Newton Aycliffe and Peterlee in Co. Durham, and Corby in Northamptonshire—are intended to solve problems created by the needs of local industry. At Newton Aycliffe the aim is to provide houses for already established workers; at Peterlee and Corby, to try to introduce a wider diversity of employment.

The Welsh New Town of Cwmbran, Monmouthshire, is being built to solve workers' travelling problems—the industries are there, but homes are needed. East Kilbride and Cumbernauld in Scotland are 'overspill' towns for Glasgow and the Clyde, while Glenrothes serves the new coalfield of Fife.

Some New Town development corporations are naturally more progressive than others, but an investi-

gation by BUSINESS confirms that most have rushed their fences in getting firms and workers to the new towns without laying on adequate facilities for making them self-contained townships—which is like asking a number of people to dinner, and then, when they have all arrived, starting to consider what they should have to eat.

There are many firms who have been established in a New Town for two or more years, and who can look back and pass judgement on their experiences in getting settled. Presented here are three case-histories of firms in this position: a large engineering firm, a small firm of scientific glass-workers, who both moved lock, stock and barrel, and the radio division of a large firm of radio and electronics manufacturers who still have their H.Q. in London.

Bouquets and brickbats are in fair balance. Briefly, the bouquets concern the advantages of new houses for employees, of new factories, and of healthier living conditions. The brickbats concern bad transport, lack of entertainment, high living costs, too few schools and technical colleges, and, until recently, poor shopping facilities.

Most of the brickbats are, of

course, receiving attention. But the key question in the minds of those who have already been established a few years is: How much longer must we wait ?

Here are the case-histories:



Crawley New Town is 30 miles south of London. Designated in January 1947, it has an area of 5,920 acres and its planned population is 50-60,000. Already it has become the largest inland town of Sussex. The industrial area covers 300 acres, and is situated to the north of Crawley's nine neighbourhoods. The furthest any worker has to travel to work is less than three miles.

Edwards High Vacuum Ltd. moved to Crawley three-and-a-half years ago from cramped and congested premises at Sydenham, south-east London. They moved lock, stock and barrel and took with them all but a few of their 450 workers.

Edwards specialize in the manufacture of high-vacuum pumps and allied products, and many of their workers are highly skilled, particularly those in the research and development departments, and in the machine and welding shops and toolroom. Since moving to Crawley, the number of employees has increased to over 600, nearly half of whom are administrative.

When BUSINESS visited the factory, W. Edwards, the managing director and founder of the company, stated: "The move has been most successful. Now, after three-and-a-half years, we have had a chance to rid ourselves of teething troubles, and can view the whole thing objectively.

"The welfare of all employees is much more satisfactory now. They have better homes, a better factory to work in, and no stuffy germ incubators like tubes and London buses to travel in. There's no shortage of clean, fresh air here in Crawley.

"In the past, my company had to utilize factories which had been built for purposes other than our own. It

cost a lot of money and time to adapt them to our own needs, and even then it was still painfully obvious that they were converted factories and, as such, unsatisfactory. This new factory was, of course, tailor-made for us. Provision was made for expansion, and already we have taken advantage of the fact by extending production space at the rear of the works. As various departments have enlarged, we have been

able to move plant and equipment about with the minimum of bother and fuss, and consequently tempers are much sweeter."

The pros and cons of the New Town may be considered under five headings: Welfare and social, labour, services, transport, and local facilities such as schools, entertainments and shops, etc.

Welfare and Social. Facilities for entertainment, recreation and culture



As there are few entertainment facilities in Crawley and no shops within walking distance of their factory, Edwards have found it necessary to supply both. The canteen, which opens onto an ornamental lake, is fully equipped for social functions. Within it, a kiosk has been set up to sell tobacco and sweets.

are very limited at Crawley, and Edwards have therefore taken pains to provide good welfare and social amenities.

Their canteen (to seat 250) serves also as a hall for social occasions. French windows open onto an ornamental lake. A large sports and social section, run by a workers' committee, is active all the year round, and a five-and-a-half acre sports ground is being developed by the company at the rear of the works.

Labour. Both skilled and unskilled labour are very hard to come by in Crawley itself; for example, it recently took nearly a month to obtain just one suitable labourer. But the company make full use of the recruiting facility of the local labour exchange, who obtain labour from anywhere in the South of England, attracting skilled men with the offer of a new house—by arrangement with the corporation.

Utility Services. All have proved satisfactory except the postal service, which Edwards consider inadequate. Another drawback is the cost of telephone communications; the toll charge deters people from ringing up from London, and the company's telephone bill has risen slightly.

Transport. Edwards' factory is situated centrally between three railway stations. Freight services are fairly good, but expensive. Therefore the company have enlarged their fleet of lorries so that they may transport their products to the docks themselves.

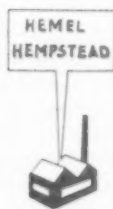
About 40 workers still travel down from London each day, having preferred not to move house. For them the train service is adequate. So is the local transport for workers to and from the factory, but the service is frequent only at peak hours, and woe betide those who visit Crawley during the morning or afternoon!

Other Facilities. Each of Crawley's nine neighbourhoods has its own public house, primary school, shopping centre, and churches. The shopping facilities in the town centre are very good.

As far as Edwards are concerned,

the big snag at the moment is the absence of a technical college for further education of apprentices and research workers. To overcome this, they operate a day release scheme, the employees attending colleges as far away as London and Brighton. However, a technical school is now being built in the town centre, and is scheduled for completion by 1958.

So that industrialists in Crawley may air their grievances and thrash out problems with the appropriate authorities, a joint meeting is held every month, attended by industrialists and representatives of the local labour exchange, gas, electricity and water boards, the British Railways Southern Region, and of course, the development corporation. As a result, many problems are dealt with very promptly. Mr. Edwards nearly always attends these meetings himself.



Hemel Hempstead New Town, 29 miles north-west of London, was designated in February 1947, the old town being included in its 5,910 acres. Planned population is 60,000 and there are five neighbourhoods. Present population is over 42,000. The industrial estate covers 170 acres.

Jencons (Scientific) Ltd., Hemel Hempstead, moved there two years ago for much the same reasons as Edwards moved to Crawley—the only way they could expand at their Acton premises was upwards, and in any case the area was earmarked for a residential building project.

The decision to move was made at a meeting between the management and their 40 employees after they had consulted their wives. All but one

worker decided to go with the firm. The firm handled the move themselves, completing it in two weekends.

All Jencon's employees are highly-skilled glass-workers. The company specialize in scientific glass work made to customers' specifications, and also manufacture a wide range of standard lines.

Their rented factory is a 'standard' type, set in a row of similar factories. The move gave them the opportunity to bring their production methods up-to-date. Now, after two years, production has increased 40 per cent, a piecework system has been introduced, and—say the management—the workers are happier and healthier.

What are the advantages of their move to a New Town? First and foremost, Jencons have the chance to expand their premises should this become necessary, because the factory has a false rear wall (as have most factories in New Towns). Second, all their workers are now together, whereas before they worked in different departments on different floors; consequently the team spirit has improved.

Piecework was introduced for two reasons. One was that the more compact layout made it practicable to do so for the first time. The other was that the workers were finding the cost of living higher in Hemel Hempstead, and thus welcomed the opportunity to earn more.

There are, however, quite a few grouses. Local bus services are inadequate, except at factory opening and closing times. Moreover, in the company's opinion there is much which could be done to improve the standard factories. The managing director, C. H. Williams, told *BUSINESS*: "I had to arrange for all electricity and gas to be laid on to the factory from the road at my own expense—it cost about £3,000. When a company stand to lose up to two weeks' production due to moving,

If a firm needs room to expand and is prepared to enter upon the move to a New Town in an enthusiastic, pioneering spirit, inspiring employees with a similar outlook, then there can be worthwhile gains

this is a heavy financial burden to bear." This point was not made clear by the development corporation when Jencons first approached them.

The company's employees regard local entertainment facilities as quite inadequate. There is only one cinema in the town. Many employees consider that, with the local bus services and entertainment facilities so inadequate, a car and TV are 'musts.' Thus they have to earn more than ever to meet the 'essential' living costs, and life becomes a greater struggle than it ever was in London.



Harlow, designated in March 1947, will, when completed, rank with Basildon as the largest of the New Towns. It is 23 miles north of London and has an area of 6,320 acres. Planned population is 80,000 but the present population is about 33,000. There are four neighbourhoods and two industrial estates.

The radio and radiogram division of A. C. Cossor Ltd. moved from Highbury to Harlow in February 1955. Only 12 key staff moved with the division, but 35 skilled men were recruited from London and about 150 women were recruited in Harlow itself. Within nine months, the number of employees had reached nearly 200, and 400 radios and 80 radiograms were being produced every day.

The factory is a standard 'intermediate' type of 8,700 sq. ft., intended as a 'transit' factory for firms intending to move to bigger premises at a later date. There is no canteen, but a corner has been set aside with tables and chairs to provide sandwich snacks and cups of tea. There are few shops nearby and the factory is next door to the industrial estate's medical centre. The farthest any worker has to travel to work is three miles, and cycle tracks lead from all parts of Harlow to the industrial estate.

What do the management think



Jencons (Scientific) Ltd. occupy one of the 'standard' factories at Hemel Hempstead. An advantage is that it has a false rear wall (a common feature among New Town factories) to permit expansion

about Harlow after two years? Local freight services were at first quite inadequate, and so originally components were brought by road from Highbury, assembled and then returned to Highbury for despatch. This caused much congestion in the loading bay. Now part of the factory floor at Harlow has been set aside for stores, and finished goods can be despatched direct from the factory.

The labour situation has been very good. Advertisements appearing locally have drawn responses from all points round London, due no doubt to local people sending copies of advertisements to relatives and friends. This suggests that they must like living in Harlow.

Entertainment facilities are still poor but Cossors run their own sports and social section. The school building programme is now well advanced. House rents are high compared with London, and some other firms report that workers have returned to London because of this. But the management at Cossors have not found this. They say: "Not one of our employees would like to return to the London area. We should

point out that although rents are higher, people living in Harlow generally have much better accommodation than that which they left behind in London."

Nevertheless, the company find it absolutely essential to stress the higher cost of living to employees before they move out to Harlow. For once they move, and feel the impact of higher costs, they are inclined to attribute all their financial problems to the move, even those that are quite unrelated to it. There is, however, some substance to the belief that living costs generally are higher in Harlow.

When the pros and cons of moving to a New Town are set against each other, it seems unlikely that many firms can expect their employees to thank them for the high-priced fresh air and clean surroundings of a New Town, even if it is far better than what they have been accustomed to. But if a firm needs room to expand and is prepared to enter upon the move in an enthusiastic, pioneering spirit, inspiring employees with a similar outlook, then the balance sheet can show some worthwhile gains.

END



XEROGRAPHY

What it Can Do Now—How it May be Used in Future

By KEITH UNDERWOOD

YOU can produce an electrostatic charge by rubbing a fountain pen on your sleeve, or by combing your hair in a dry atmosphere. In the industrial field this form of electrical energy is more often a liability than an asset. Either it attracts dust (as in the printing of cinematograph films) or it makes certain types of material behave erratically (as in the production of synthetic fibres). Sometimes the nuisance is so great that the working-zone has to be screened electrically.

But the scientist—and the businessman—are beginning to regard 'static' in a new light. During the past few years there has appeared on the scene a small range of commercial and industrial processes which employ this electrical phenomenon in a particularly useful way. One of them is electrostatic painting, the subject of a pictorial case-history in the July issue of *BUSINESS*. Another is xerography.

Xerography takes its name from the Greek 'xeros' (dry) and 'graphein' (to write). Essentially it is a method of making photographic reproductions without using photosensitized materials or chemical developers.

The process has far-reaching possibilities. Some of them may take a

long time to materialize; others are at a fairly advanced stage of development. At present the main commercial applications are (1) the production of paper or metal 'masters' for offset-litho duplicating; and (2) the enlargement of microfilm images.

Advantages? Undoubtedly the most important are speed and simplicity. Using xerographic equipment, an offset paper master can be made from start to finish in less than three minutes. Normally this operation takes at least one hour. Moreover, the xerographic master has a long life; in some cases as many as

20,000 copies can be run off before it starts to deteriorate.

For high-speed microfilm enlarging there is automatic equipment which performs the xerographic process in a continuous cycle and reproduces the enlarged images on a web of plain paper. The output is 20ft. a minute.

Xerography—in its present form—is unable to produce 'snapshot' photographs of ordinary subjects; the special plates lack the speed and sensitivity of conventional silver halide materials. But such developments are under consideration, along with the possibility of reproducing colours as well as black-and-white tones. If the more optimistic hopes are justified, the time may come when xerography is in direct competition with photography, offering the advantage of an exceptionally fast dry processing method.

An increase in the speed and sensitivity of the materials may also ac-

OUTLOOK

Xerography is already available as a method of reproducing business documents. But other uses are being developed. They include:

- ▶ Making direct-positive industrial X-rays
- ▶ Recording the output of computers
- ▶ Making printed circuits
- ▶ Transmitting information over long distances
- ▶ 'Letterpress' printing with powder



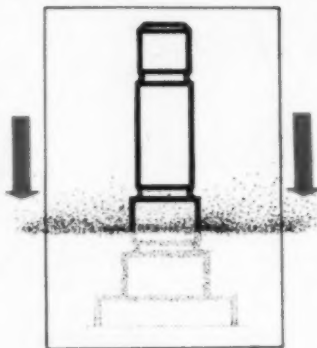
celerate the development of other business applications which have appeared, a little mistily, on the horizon. These include xeroradiography—the use of xerography in making X-rays for industrial and even medical purposes—and a new method of recording the output of electronic computers.

How it Works. The basis of the xerographic process is a special plate coated with selenium. This material is photo-conductive; in other words, it conducts electricity when light shines on it, but retains an electrostatic charge in the dark. Exposure to light does not destroy its properties (as happens in the case of silver halide materials), so one plate can be used time and time again to make hundreds of different images.

This is the procedure when making a direct xerographic copy of an original letter or document:

- 1—The plate is placed in a unit called a 'processor' and given an electrical charge. It is then transferred to a xerographic camera.
- 2—For a few seconds it is exposed to the brilliantly-lit subject. This means, of course, that an image of the original document is projected on to the plate by the lens. Where there are dark areas, the electrostatic charge remains; where there are light areas, the charge 'drains away.'
- 3—The plate is returned to another section of the processor. There, the latent image is developed by cascading a special powder over the surface of the plate. Particles adhere only where there is still an electrostatic charge.
- 4—Another electrical charge transfers the powder image to a sheet of ordinary paper placed on top of the plate.
- 5—The powder incorporates a heat-sensitive binder, so the image is

made permanent by heating the paper for a few seconds in a 'fuser.' Offset-litho masters are produced in the same way as single copies of letters and other original documents. The only difference is that a standard offset 'blank' is used instead of a plain sheet of paper when the pow-



When powder is cascaded over the plate, particles adhere to the electrostatic image of the subject. The powder image is then transferred to a sheet of paper.

der image is transferred from the plate. Once a plate has been charged, exposed and developed, the same xerographic image may be transferred from it several times, thus permitting as many as six copies to be made in one operational cycle.

Another unique feature of the xerographic process is that the positive image can be obtained directly from either a positive or a negative. This flexibility, achieved by varying the polarity of the electrical charge and by using a different type of powder in each case, is particularly useful when enlargements are made from a negative microfilm.

For single-copy work, the xerographic process is generally more expensive than conventional photocopying methods — assuming that these suit the application. But in some cases it is possible to get the best of two worlds by using xerography as a means of obtaining translucent or transparent masters for subsequent reproduction by the relatively cheap dyeline process.

Before it is fused a xerographic image can be touched up or otherwise amended simply by removing the unwanted powder with a piece of cotton-wool or a special eraser.

Progress Report. An American lawyer and physicist invented xerography in 1938, but for several years his idea hung fire. Then it was taken up by the Battelle Memorial Institute of Columbus, Ohio. Their research produced such excellent results that in 1947 the Haloid Company of Rochester, New York, undertook to develop the process commercially.

Three years later the first commercial equipment was placed on the American market. Since then Haloid have supplied thousands of xerographic units to government depart-

FOUR STAGES IN THE PRODUCTION

- 1—The charged plate is briefly exposed to the subject-matter in a special camera;
- 2—Developing powder is cascaded over the exposed plate;
- 3—by an electrical charge the powder image is transferred from the plate to an offset 'blank';
- 4—the image is made permanent in the fuser.



1

ments and private firms. Some of the users report substantial economies. For example:

► The Chrysler Company estimate that they are saving nearly \$250,000 (about £80,000) a year by using xerography for the reproduction of engineering drawings.

► The Ford Motor Company use xerographically-produced offset-litho masters in their O & M department. They report that the cost of preparing a master for a revised office form is approximately 37 cents (about 2s. 6d.) including materials, labour and overheads, compared with \$3 12 cents (over £1) for the zinc master which might otherwise have to be used.

Xerography has reached Britain as a result of an agreement between Haloid and Rank Precision Industries. A new company, Rank-XeroX Ltd., are producing equipment and powders under licence.

A few American-built machines have been installed in this country, and the first British units are now being delivered. The cost of a complete outfit—processor, camera and fuser—is under £700. This, surprisingly, is about 60 per cent of the list price of similar equipment made and sold in the U.S.A.

Among the first British users are the Shell Petroleum Company, the U.K. Atomic Energy Authority, and the market research firm A. C. Nielsen Ltd., Oxford. The G.P.O. too, are using xerography in connec-

tion with the Premium Bonds scheme. After each draw, the 2,300 prize-winning numbers picked by 'Ernie' have to be sent very quickly to 4,000 post offices. Typewritten sheets, each listing about 200 numbers, are converted into xerographic masters, from which copies are printed on offset-litho machines.

Rank-XeroX are directing a lot of attention at the microfilm application. They believe that in this respect the introduction of xerography has made possible an entirely new

method of creating bulk copies of business documents.

At present microfilm is seldom used for anything more than the storage of records in a compact form. This is because the production of enlarged copies by ordinary photographic methods is time-consuming and expensive. But in future microfilm may assume the role of an 'active intermediate' in an automatic copying process.

The original documents will be recorded on a strip of microfilm. From



For high-speed microfilm enlarging, an automatic machine performs the xerographic process in a continuous cycle. Output speed is 20ft. per minute.

OF A XEROGRAPHIC OFFSET-LITHO MASTER



2



3



4



this the required number of copies will be made continuously on automatic equipment. Afterwards the film will be thrown away, or filed if it is thought that additional copies will be needed subsequently.

As far as the cost of materials is concerned, the process will have very little advantage over other photocopying methods. (The charge for microfilm enlargements made by the company's enlarging service is 9d. a foot.) But Rank-XeroX believe that it will score heavily on the grounds that the copies are produced simply, quickly and automatically.

One possibility is that firms in different countries will exchange information in the form of microfilms. Thus the sender will be spared the cost of making full-sized copies of the original documents, and mail charges will be reduced considerably.

The xerographic process may cause a small revolution in the drawing office. Because microfilm enlargements can be made so quickly and cheaply, it will become more practicable than ever before to store engineering drawings in this form.

Looking Ahead. Under the terms of their agreement, Rank-XeroX are co-operating with Haloid in the development of new applications.

The use of xerography in automatically recording the output of a computer is one of the most exciting prospects. Laboratory experiments have proved that it can be done, and Haloid are now undertaking development work in collaboration with International Business Machines, the General Dynamics Corporation and other big American firms.

The process consists of continuously exposing a xerographic drum to the image on a cathode ray tube. According to the president of the Haloid Company, Joseph C. Wilson, recording speeds of up to 20,000 characters a second are within the bounds of possibility. This is much

This xeroradiograph shows the remarkable detail which the process is capable of reproducing. But at present technical limitations prevent it from being used widely for either medical or industrial X-rays.



faster than any existing output system.

The future of xeroradiography is a little obscure at the moment. In theory, it is already practicable; in practice, there are snags. The biggest snag, it seems, is that the xerographic process is unable to produce a 'perfect' print on every occasion.

Industrial X-ray photographs must be perfect, otherwise the whole purpose of non-destructive testing is defeated. For example, a small blemish in a xeroradiograph of a casting might be identified as a blowhole—and because of it an expensive component might be scrapped unnecessarily.

Almost certainly the technical limitations of the process will be overcome in due course. Then the speed and comparatively low cost of xerographic printing (and also the fact that it produces direct positives) will do a great deal to popularize the use of X-rays in many types of inspection. In co-operation with the American General Electric Company, Haloid have already produced X-ray pictures which reveal a remarkable amount of detail.

Eventually the X-ray process may be used for medical purposes. But its scope in this field will be limited unless the speed and sensitivity of the selenium plates can be increased considerably. At present, the length of exposure required, although suitable for the extremities, is excessive for the thick parts of the trunk.

Other applications are on the horizon. They include the manufacture of printed circuits for use in electronic equipment; the automatic recording of oscillograph images; and the transmission of information over long distances. It is also possible that conventional letterpress printing will be challenged in some fields by an offshoot of xerography called 'xeroprinting.' This uses powder instead of ink, and by electrostatic force imprints images repetitively on a continuous web of paper. In the laboratory, it has already achieved output speeds as high as 1,200 feet a minute.

Such developments have an exciting ring. But they should not obscure the fact that xerography's main uses for some years to come will be those which are available now. **END**

Now under development is a method of recording the output of an electronic computer by exposing a xerographic drum to the image on a cathode ray tube. Recording speeds of up to 20,000 characters a second are possible.

MANAGEMENT AT WORK

IDEAS AND ACTIONS OF PROGRESSIVE FIRMS

Safety First

HERE are some of the ideas that were used by Batchelors Peas Ltd. in a recent Safety Week at the company's Sheffield factory.

- 'Careless Kate' was the name given to a 9ft. photograph of a female worker exemplifying how *not* to dress at work—uncontrolled hairstyle, long earrings, necklace, bracelets, high-heeled shoes, etc.
- An exhibit of other photographs was held, each accompanied by some lines of doggerel pointing a hygiene or safety morale.
- Each day of the exhibition, £1 was awarded for the best safety or hygiene suggestion. At the end of the week prizes of £10, £5 and £2 were awarded for the week's best suggestions.

The War Game

LATEST idea in American executive development training is an adaptation of the Army's T.E.W.T. (Tactical Exercise Without Troops). Employing some of the techniques of operational research (BUSINESS, April 1957) the tactical exercise consists of simulating ten years in the life of a company. Small syndicate groups represent the decision-makers of rival companies. Working from a detailed brief, they spend two and a half days making moves which they think will make their company 'one up' on the others.

The umpire is a computer, which has been carefully programmed. It receives the syndicates' decisions, assesses and compares them, and issues 'quarterly' operating statements for each individual syndicate, showing the results of each decision in action over a three-month period.

The game was thought up by the American Management Association. Top management executives of prominent firms have done test runs

with it, and state themselves most pleased with the results.

Each team starts from the same asset position: all five companies are of equal size and are manufacturing an identical product selling at between 5 and 10 dollars. Players must decide on policy under six major headings: production cost, marketing effort, market research, development, capital investment and product price. The winners are the 'company' who build up the most assets in the simulated ten-year period.

Youth at the Helm

THERE are several unusual points about the Junior Board that has been in operation at Evans Chemicals Ltd., Borehamwood, since September, 1954. The main one, perhaps, is that the firm employ under 200 people. Also, they are a private company, so the creation of a junior 'board' is, in itself, a surprising move.

The board consists of three members, nominated in the first place by the management. These are of junior executive rank and themselves elect a fourth member of non-executive rank. The four then constitute an executive committee, and are responsible for electing another three members, to bring the board's total to a maximum of seven.

The board is of the rotating membership type described in the March issue of BUSINESS (Junior Boards—Why Some Succeed and Others Flop). Senior executives are not allowed to belong to it, nor do top management representatives sit in on meetings except at the board's own invitation.

Minutes are kept, but are not seen by top management. Instead, only suggestions and recommendations that have been agreed unanimously are passed on to the senior board. Any such recommendations are carefully studied. If they are rejected, a full answer is sent in memorandum form to the junior board.

One executive function of the board is to process suggestions from the shops, and either pass them on (if approved) or expand them into a workable idea. Where it is thought advisable, the board passes on the name of the person responsible for an original idea, and recommends that an *ex gratia* payment be made. The firm do not run a formal suggestions scheme apart from this.

The objects of the board are stated in its articles as:

- 1—To assist the board of directors by making recommendations designed to contribute towards the well-being of the company and their employees.
- 2—To provide an opportunity for junior executives of potential ability to participate in the management of the company.
- 3—To educate such executives in the methods of company operations.

There is no question of training up future directors. But one ex-member

Junior board with a difference — it belongs to a 200-employee firm (see: Youth at the Helm)



has already been appointed to the senior board, and the company state that his promotion was influenced, in part at any rate, by the consistently good showing he made while on the junior board.

Come to Britain

DEXION Ltd. are recruiting young technologists in Australia in an attempt to overcome the British shortage. Other companies have schemes for training Commonwealth men in this country, and then sending them back to subsidiary companies overseas. But Dexion say they hope their Australian recruits will stay on over here.

The idea arose from a brainstorming session some time ago. Now, advertisements have already appeared in the Australian Press, and a member of the personnel department has flown out to make the final selection of candidates.

Small Firm Gains

MOST small firms dismiss the idea of employing management consultants as much too expensive. A survey made some time ago disclosed that only a tiny proportion of consultancy work is for clients with fewer than 200 employees.

But here is the case of a firm which took a different view and found that it paid handsomely. Metlex Industries Ltd., manufacturers of bathroom furnishings, have about 100 employees. For them a familiar problem—the inability to produce enough goods to meet demands—was aggravated by the seasonal nature of the market and by restrictions on storage space.

They called in a consultant. His first job was to train one management representative and one production worker in work measurement techniques.

Since the introduction of work study and of a new incentive scheme (the inadequacy of the old piecework scheme had caused trouble) output has risen by about 50 per cent. In the first year of operation, the net gain exceeded the total cost of the project, which was £3,000 plus the

salaries of two extra office workers. This profit was more than doubled in the second year.

Output per manhour is up by 55 per cent; the number of despatches, by 36 per cent; the workers' earnings, by about 25 per cent. Unit labour cost has been reduced by 7 per cent.

No-Man Hired

ONE president of a U.S. company is doing something to shake his staff out of its 'yes man' attitudes, reports 'Management Review'. He has actually installed a vice-president whose major role is to non-conform. "If I catch him agreeing with anything or anyone too often, he's liable to be bounced out," says this innovator. "The function of this man is to stimulate critical thinking. At our conferences he is a deliberate minori-

ty, tearing into reports, ideas and programmes that have the group blessing. Sometimes he is too darn non-conforming. But he has done our organization a lot of good.

"I am also using our bonus plan to help encourage non-conformism. Last year, for example, one of the men in our group threatened to resign if one of my pet projects (supported solidly, of course, by the executive group) was put into effect. He got a bigger bonus than those who made little effort to find the flaws and speak up. I dropped the plan, though I still think it's a good one. But the point is that someone had the guts to take issue with the solid majority, and in the process came up with three counter-proposals. That is the sort of thing that helps to make a company grow".

Management View of Recent British Standards

Inches to Metres

● The conversion of inch and metric sizes on engineering drawings is of great importance to firms selling to countries using the metric system. There has long been a need for some standard method which gives great accuracy and yet is simple to apply. B.S.2856 entitled *Precise conversion of inch and metric sizes on engineering drawings* fills the breach.

The standard describes a technique of conversion which gives the necessary precision but avoids too many decimal places in the converted size. Simple rules are given on the successive steps of conversion with typical examples. Tables of conversion from inches to millimetres and vice-versa are based on the factor: 1in. equals 25.4mm. exactly.

Presenting Your Case

● The expression of experimental results is an art. In science and technology—as in literature—to have something to say is not enough; it must also be well said. B.S. 2846, *The reduction and presentation of experimental results*, develops the theme

that uniformity of procedure is essential, both in summarizing and in comparing results. There is expert guidance on how to treat a variety of experiments in laboratory or factory, in big or small-scale observations or in a long series of quality-control tests.

For the Record

● Those whose job is to classify information and those who frequently need to consult reference material will be interested in the 1957 edition of *Universal Decimal Classification*, known as B.S. 1000A. UDC is a coding system which can be applied to any written matter; it brings together all references to information on any single subject and enables such references to be located in the shortest time.

Mind Your Head

● If heads are your worry, then read B.S. 2826, *Industrial safety helmet (heavy duty)*. Helmets made to this standard are strongly designed to protect the heads of structural engineers, shipbuilders, quarrymen, miners and oil-refinery workers.

Business Bookshelf

THE ORGANIZATION MAN by William H. Whyte Jr. (Simon and Schuster) \$5. Over 400 pages of eminently readable description of the lives and habits of typical young American business executives, both within their companies and on the sort of modern housing estate that they so often inhabit. The things that the company or the estate do for the typical American middle class family tend to be similar to the things that the British Welfare State does for its working class—and largely for the middle class too. Thus Mr. Whyte issues the same sort of warnings and gives descriptions that fit both cases. He is particularly concerned with the danger of too much beneficence from an over-organized company or estate, also with the consequences of a widespread craving for conformity in behaviour.

Mr. Whyte urges the individual to fight The Organization. "The demands for his surrender," he says, "are constant and powerful, and the more he has come to like the life of organization the more difficult does he find it to resist these demands, or even to recognize them."

What now needs to be done is for someone to write a book showing the other side of the medal. There are always the quick-witted who never surrender or conform to any new system, but who learn to exploit and manipulate it for their own private ends. Just as the post-war period of high taxation and controls saw some of the biggest fortunes ever made in as quick a time as ever—in spite of all the apparent handicaps—so there are executives who ride high over all attempts to organize them as part of a standard system of grooming for 'higher responsibilities'.

FLUCTUATIONS, GROWTH AND FORECASTING by S. J. Maisel (John Wiley) 60s. An excellent book for the economic adviser—or for the businessman who is his own economic adviser, if he is a quick reader and can find the time to digest over 500 pages. Dr. Maisel is associate professor of business administration at the University of California, and was formerly an economist with the Board of Governors of the Federal Reserve System. His book does not avoid mathematics where necessary, but it concentrates on explaining the behaviour of different sectors of the economy—such as personal consumption, saving, business capital expendi-

ture and Government expenditure. Oddly enough, the author does not use much of the latinized English so beloved of American professors. Anglo-Saxon words are in the majority.

THE WORLD DOLLAR PROBLEM by Donald MacDougall (Macmillan & Co.) 50s. A penetrating analysis by a leading British economist, which on balance rather gloomily predicts that the world dollar shortage will go on, with repeated crises leading to devaluation roughly every ten years. One of the most important suggestions Sir Donald makes for postponing and possibly avoiding these crises is an increase in the world price of gold. This has in the past, however, been strenuously opposed by the Americans.

BOOK-KEEPING SIMPLIFIED by W. O. Buxton (Pitman) 8s. 6d. Fifth edition of an elementary text.

HIGHER CONTROL IN MANAGEMENT by T. G. Rose (Pitman) 30s. Sixth edition of the standard text, first published in 1934, by a leading authority on management accounting who explains clearly to top management and accountants alike the nature of the figures that must be produced and considered if a business is to be run efficiently.

TECHNIQUES OF TRAINING (Shell Petroleum Co., 1 Kingsway, London, W.C.2) 8s. A step-by-step account of the methods used by Shell in teaching their training staff how to teach. It covers both discussion-leading and group instruction, and analyses the value of different types of training and training aids.

BOTTIN INTERNATIONAL BUSINESS REGISTER (Bottin International Company, 62 Oxford St., London, W.1.) 95s. With explanatory text in French, English, Spanish and German, this 2,200-page directory has products and geographic classifications covering the whole world. It gives general trade information as well as the names and addresses of importers and exporters.

AN ECONOMIC GEOGRAPHY OF THE COMMONWEALTH (Economist Intelligence Unit) 18s. 6d. Commissioned by the Federation of Commonwealth and Empire Chambers of

Commerce, this little book describing the resources and industries of the Commonwealth is of special interest to students.

FILING SYSTEMS by E. A. Cope and C. R. Curtis (Pitman) 12s. 6d. Fourth edition of a small text describing the principles of the various systems and their application.

Are Your Costs and Prices Realistic?

Does your thinking take account of changing values? So many things have gone up in price—labour, machinery, supplies, professional services and finished goods. This table, based on the retail price index, gives you a rough set of conversion factors for bringing your values up-to-date. For example, if you spent £100 on a machine in 1931, for which year the conversion factor is 2.77, then you could hardly be surprised if a similar machine now costs £277. It may actually cost more or less, but you would expect values generally to be around 2.8 times the 1931 level. This table will be brought up-to-date every quarter, but published monthly, for handy reference.

Con- version		Con- version	
Year	Factor	Year	Factor
1913	= 4.07	1934	= 2.89
1919	= 1.87	1935	= 2.83
1920	= 1.64	1936	= 2.77
1921	= 1.81	1937	= 2.63
1922	= 2.22	1938	= 2.60
1923	= 2.32	1946	= 1.69
1924	= 2.32	1947	= 1.60
1925	= 2.32	1948	= 1.49
1926	= 2.37	1949	= 1.45
1927	= 2.43	1950	= 1.41
1928	= 2.45	1951	= 1.26
1929	= 2.48	1952	= 1.18
1930	= 2.58	1953	= 1.14
1931	= 2.77	1954	= 1.12
1932	= 2.83	1955	= 1.07
1933	= 2.89	1956	= 1.02

Your New Continental Market

Tariff abolition is only one of the provisions of the Common Market treaty. It also provides for the equalizing of social costs, a 40-hour week, equal pay for men and women, and three-weeks' annual holiday—all of which will raise European costs. This second article on Europe gives information about the treaty essential to every exporter

IN principle the plans for making European trade freer are quite simple, but in detail they are extremely complex. The idea is to give European manufacturers and traders even greater opportunities for doing business than are enjoyed by their opposite numbers in the United States, who now have access to a home market of 170 million people. This is to be done by creating in Europe a vast common market and free trade area with possibly 300 million people.

At present there are, outside the Iron Curtain, 19 European markets, each surrounded by a wall designed to protect local industries and agriculture against the 'unfair' competition of possibly cheaper goods from outside the national boundaries. Now the aim is not only to demolish these walls by agreement, but to use European economic resources as a whole. The result should be the rapid economic development, and therefore the growing prosperity, of everyone taking part.

The idea of a United States of Europe is by no means new. But the

first practical steps towards economic integration were not taken until after the last war. Marshall Aid from America was offered to Europe as a whole—not to the individual countries. As a result, the Committee for European Economic Co-operation was formed at the initiative of the British Foreign Secretary of the time, Ernest Bevin, and under the

By G. R. LAMPTON

chairmanship of a British banker, Sir Oliver Franks.

This committee, which soon became the Organization for European Economic Co-operation (OEEC), had three main jobs: (1) to set out what help Europe needed from the U.S.A. for the reconstruction of its industries after the war; (2) to allocate amongst the different nations the American aid that eventually came in such generous measure; and (3) to report on the economic progress of Europe as a whole.

In 1948 Belgium, Holland and Luxembourg decided to begin to integrate their economies. During the war their exiled governments had come to the conclusion that a customs union of 20 million people stood a better chance in this competitive world than the separate nine million of Belgium and 11 million of Holland.

But the first real step towards European economic integration came in 1951 when six countries decided to pool their coal and steel resources.

They were the three Benelux countries, and France, Italy, and Western Germany. Britain, though invited to join the resultant European Coal and Steel Community (ECSC), decided not to become a member but to be an associate.

As the ECSC is the model for the European Common Market, and as that in turn will be the model for the associated European Free Trade Area, it is worth noting briefly how the Community works. First of all, the six governments agreed that their coal and steel industries should be controlled by a common organization—the High Authority of the Com-

munity. This supranational body now makes the laws under which the different coal and steel enterprises of the Six operate. It is important to note that the governments of the Six have completely and for ever surrendered their powers over the coal and steel enterprises in their countries.

All this has worked very well. Coal and steel now move freely within the Six (quantitative restrictions, customs duties, double-pricing and other restrictions on the coal and steel imports from member countries have been abolished) and the Community has a common tariff and import policy towards the outside world. The most important aspect of the ECSC, however, is that each of the coal and steel enterprises of the Six retains its separate identity and is free to compete on mutually equal terms with all the other enterprises in the Community, and, of course, with those outside it.

When it was seen that the coal and steel industries could be successfully integrated, plans were made to do the same with all the other economic activities of the Six. (The United Kingdom once more stood aside, though invited to join the planning talks.) These plans resulted in the Messina conference of 1955, since which the Six are often called the Messina Powers.

The conference decided to go ahead with the Common Market, and it was followed a year later by the signing of the treaty (in March 1957). Britain, though it did not join the Common Market, proposed a wider and somewhat looser form of association a year ago, which, for want of a better name, has come to be known as the European Industrial Free Trade Area. By this means, it was suggested, Britain and possibly another five countries (Austria, Denmark, Norway, Sweden and Switzerland) were to become associated with the Six; later, perhaps, some special arrangements would be made for the remaining but relatively under-developed OEEC members (Finland, Ireland, Iceland, Portugal and Turkey).

As many of the provisions of the

The Treaty— Main Provisions

① Each of the Six will, over a period of up to 17 years, abolish all tariffs on trade with the other members and their overseas territories. The rate at which the tariffs on particular goods are to be removed is clearly specified in the treaty. The detailed provisions are complicated, as they are hedged about with concessions and temporary escape clauses, but it is important to realize two things about them: (a) once agreed to and in operation, any tariff cuts are virtually irrevocable; and, (b) though a period of up to 17 years is allowed before all tariffs have to disappear, the clear hope is expressed that many goods will be able to move quite freely within the Common Market much more quickly, possibly within ten years.

② As the Six progressively remove their tariffs on trade amongst themselves, they will gradually establish a common tariff against non-members.

③ Certain social costs, as they have come to be called, are to be equalized as much as possible amongst the Six. In effect, the hours of work, holidays and similar social factors will be brought into line. As France has the highest social costs at present, the first step will be to bring some of the social costs of the other participating countries up to the French level. The main provisions of the treaty in this respect are:

(a) A 40-hour working week will be the standard. Thus, in countries where longer hours are normally worked, such as Germany, wages costs will rise as overtime will have to be paid after 40 hours.

(b) There is to be equal pay for men and women. This too will have the effect of raising wages costs in several countries.

(c) Three weeks holidays a year are to be fully paid. This is bound to have an adverse effect on productivity in some countries, thus tending to raise wages costs even more.

④ Industries or trades as well as workers or localities that are hit by the establishment of the Common Market will be provided with special grants from a re-adaptation fund financed by the member countries. By this means it is intended to help to pay for the re-training and possible transfer of workers as necessary, and for providing facilities in some areas for the establishment of new industries.

⑤ In addition to the re-adaptation fund, a new investment bank will be set up to finance development. With an initial capital of nearly £300 million subscribed by the member countries, and with authority to lend up to £800 million, this bank will do much to accelerate the progress in the relatively under-developed parts of the Common Market countries and even in their overseas territories.

⑥ Competition between individual firms, including state enterprises, will be regulated to some extent. Thus the treaty provides for the prohibition, within three years of coming into force, of such restrictive practices as price fixing agreements between manufacturers, arrangements for market sharing, restriction on investment in particular areas, artificial limitation of output, preferential treatment of some customers, resale price maintenance and so on.

Common Market treaty amongst the Six will also have to be part of any Free Trade Area agreement if the idea of looser association is to work, the most important of them are listed on page 73. (In any case it is worth knowing what the competition is planning.)

The treaty now awaits ratification by the Six. For practical purposes it may be assumed that the first round of tariff reductions will become effective on January 1, 1959, as originally planned when the treaty was drawn up.

Provided everything goes more or less according to the plan agreed by the Six, this, briefly, is what is happening on the Continent:

In less than 20 years there will be, in effect, a new country with a population by then nearing 200 million. Though they will speak six different

languages they will be one industrial and commercial community—in fact, the so-called Common Market should properly be referred to as the European Economic Community.

Goods and workers will be able to move about quite freely within its boundaries. Manufacturers will be able to plan for a home market as vast as the American home market. This is all bound to have a favourable effect on the prices of Community goods not only within the Community itself, but also outside it. By pool in their economic resources, the Six will also be able to take far greater technological strides than they could have on their own. And their inhabitants will become much better off than could otherwise have been the case.

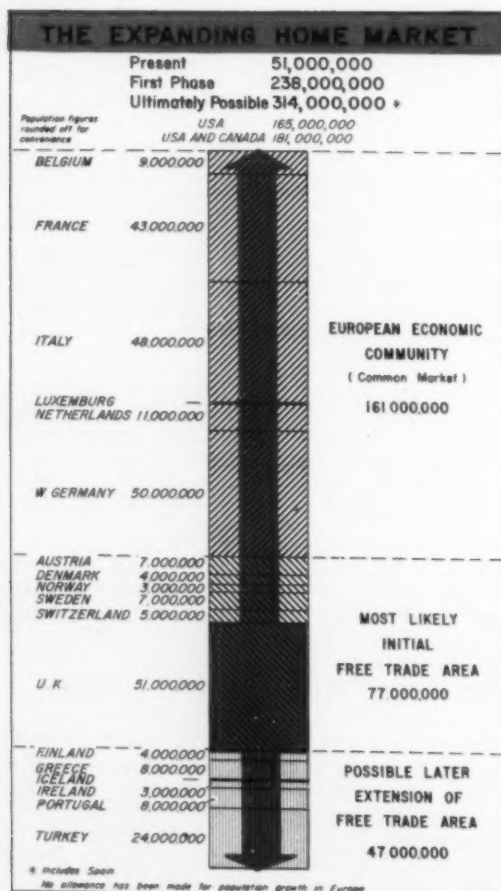
Faced with the clear determination

of the Six to form a Common Market (with or without Britain), we clearly have no choice but to find a way to share the benefits of a considerable degree of European economic integration (as distinct from co-operation). If we should fail to do so, our competitive strength in world markets—especially in Europe, and even in the Commonwealth—will be very seriously weakened.

The British government's proposals for a European Industrial Free Trade Area are an attempt to get the best of two worlds. Thus it is hoped that we may be able to continue to benefit from our special position in the Commonwealth, as well as from closer association with, but not full membership of, the new European Economic Community. The terms on which the Government wishes to associate the United Kingdom and certain other countries with the Six are set out in a White Paper (Cmd. 72, 6d.) published earlier this year.

The essence of these proposals is that whilst the U.K. would agree to abolish tariffs on imports from the Six and other possible members of the Free Trade Area, preferably in step with the abolishing of tariffs within the Community, all the members would be free to maintain their individual tariffs and preferences on imports from the rest of the world. In addition, Britain wishes to exclude agricultural products from any free trade area arrangement.

The chances are that despite various delays that have already occurred, the common market of the Six and the wider free trade area of another six countries (of which Britain will be one) will begin to operate in little over a year from now. The first fruits of this operation will be a number of tariff cuts, to be followed shortly by the introduction of new legislation in many countries designed to conform with the treaties' standards for social charges and restrictive practices. And year by year for nearly 20 years small steps will be taken to establish one giant European market. An article next month will bring the reader up-to-date on what British firms and organizations are doing about Europe.





The steering committee was formed to help guide the company through a sticky period during the last national wage claim. It proved a success, so it was continued and given a wider scope. The seating plan ensures that each shop steward sits next to a member of top management. Minutes of the meetings are posted on the works notice boards.

JOINT CONSULTATION—A CASE-HISTORY

Barriers Down- Production Up

When C. F. Barnard was appointed managing director of Mirrlees, Bickerton and Day Ltd., Stockport, production was not keeping pace with orders and there was a yawning gap between management and workers. So he introduced a system of joint consultation with a series of regular meetings at all levels. Result—a rise in productivity per man of 21 per cent.

IT is difficult to assess the success or otherwise of a joint consultation system. Phrases like 'improved relations,' 'better conditions,' 'closer teamwork,' may be true, but inevitably they have a platitudinous ring. Therefore, when a company produce tangible results—a rise in productivity—they can claim to have put their fingers on a good system. And when a system not only solves the problem of apathetic and untitled workers, but goes so far as revealing managerial weaknesses and giving them, then it is a good one indeed!

Such a system is run by Mirrlees, Bickerton and Day Ltd., Stockport, manufacturers of industrial and marine diesel engines. Since its introduction in 1953, output per man, expressed in money values, has risen by 21 per cent; taking into

By LEWIS KONRAD

account the inflationary spiral, the actual increase is 47 per cent.

The system involves a series of meetings at all levels. As individual groups, the shop stewards, the senior

staff, the supervisors and representatives of the office staff meet the management regularly. At any time a department is entitled to call a 'production development' meeting at which management is represented. On top of this, the senior management get together regularly for the specific purpose of discussing joint consultation.

This structure has been built up gradually. Trial-and-error has played a big part in determining its present form.

C. F. Barnard, late managing director and now executive vice-chairman, describes the project in these words: "We have taken all workers into our confidence and have made them feel that they are members of a team. They are given every opportunity to suggest improvements, whether in design, method or administration. They are allowed to criticize constructively without any comeback. Above all, we treat them as human beings—not just productive units."

When Mr. Barnard was appointed managing director in 1953, the firm's order book was full. But the steel shortage, brought about by the Korean war, had partly disrupted pro-

duction. Also, new engines were being tooled up. Because of the shortage of materials, piecework earnings were restricted, overtime was rare and men were generally apprehensive about the immediate future. Indeed the piecework system, normally an incentive, had actually become a liability. Mr. Barnard realized that when a man's earnings are linked directly to the efforts which he puts into his job, he is likely to blame the management — rightly or wrongly — for anything which prevents him from working hard and earning more.

This had happened at Stockport. When Mr. Barnard took over, there was a yawning gap between management and worker. He decided then and there to make an all-out effort to bridge it.

His first action was to size up the work situation and, by careful re-planning, to concentrate work-in-hand on priority orders for which materials were immediately available, so that the employees could work hard again and regain their lost enthusiasm.

At a mass gathering in the works canteen, he gave what he calls a "blood, sweat and toil exhortation," explaining the problems in full. He told the workers he wanted higher output, but that it could not be obtained unless everybody worked as a team.

Inevitably, he explained, the con-

centration would cause some redundancy, but he assured employees that everyone would get a square deal — and that he never broke a promise. If they could hold on in the existing circumstances, he said, the situation would improve and eventually get back to normal.

The talk went down well; the workers could see where they were going.

Regular Meetings

At this gathering it was agreed to hold certain regular meetings. As a result, Mr. Barnard began to see the senior shop stewards once a week in the boardroom at a time which allowed half-an-hour before lunch to discuss problems and complaints over a cigarette. Among the first complaints were those already mentioned — that some departments were having more than their share of what little overtime there was, that there were insufficient materials to support a piecework system, and that, generally, there was not enough work to go round.

The meetings were completely informal and no minutes were taken. But Mr. Barnard was generally able to stop any trouble before it got out of hand.

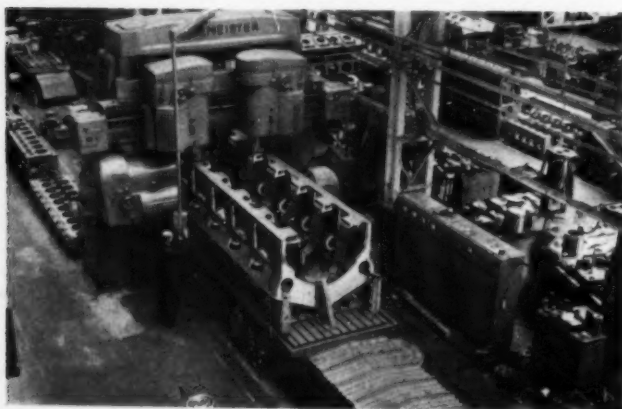
Soon he realized that he had made a serious (but very common) mistake. Although his relations with the shop floor had improved considerably, he

had inadvertently by-passed his senior staff. He realizes now how easy it is in joint consultation to undermine intermediate management — and also the danger of doing so. The senior staff at Stockport, to put it mildly, felt 'out of it' and a little resentful. The fact was that Mr. Barnard, in his anxiety to improve communications with the rank-and-file, was telling the shop stewards things which his senior staff did not know.

So he started a senior staff forum which met every two months. At these meetings he was careful to give details of all developments before the shop floor representatives were told. This worked out very well. The men were allowed to raise anything, and to criticize anything, even the managing director. It took some time before they got used to the idea that they could criticize *all* the things they knew were wrong or thought were wrong. But eventually the stage was reached when, if any member of the senior staff voiced a 'gripe' between meetings, he was promptly told by his colleagues to raise it at the forum. Again, it was possible to stop ill-founded rumours which could have done much harm.

Mr. Barnard then arranged for similar bi-monthly meetings with the foremen. They took even longer to get used to the idea of being given *carte blanche* to criticize anything. But, again, the idea worked, and the management had the courage to admit their mistakes and to rectify them.

Then came what Mr. Barnard regards as the turning point of his campaign: the introduction of 'production development' meetings. Their aim is to encourage constructive suggestions and criticisms on purely production matters, or on matters which affect production. A shop steward can ask for one of these meetings on behalf of his own section. The section then sends in four representatives, together with the shop steward, the convener and the chairman of shop stewards. The management are represented by the works manager, the foreman of the shop concerned, and anybody else Mr.



All workers are given the opportunity to suggest improvements, whether in design, method or administration. More important, they can criticize without fear of any come-back

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TWO COMPANIES OF THE BELL PUNCH GROUP

AUGUST, 1957

The company have found that it is imperative not to under-estimate the intelligence of the average worker. "He is well educated . . . and he knows, on the whole, 'what's what.' He will not accept cock-and-bull explanations any more."

Barnard feels can contribute to the discussion.

In the early stages, the main problems discussed were draughts and cold tea. Later, more important points were raised, for once the workers realized there were no comebacks, they put forward many genuine complaints and suggestions. For example, the men in one section were having to walk excessive distances to sign on for jobs. It was suggested that production would be increased if new arrangements were made. In this and other ways the management soon discovered that productivity was being lost through things about which they knew nothing.

White-collar Workers

Then certain troubles occurred in the drawing office and in some of the administrative departments. It dawned on Mr. Barnard that white-collar workers were the only people in the factory with no direct access to him. As there were too many weekly staff to invite to a meeting, departmental representatives were elected in a ratio of one to every ten.

The most recent addition to the system is a steering committee, which was formed when the last national wage claim had just started. The company foresaw a 'sticky' period ahead with both the men and the unions, and the aim of the committee was to help steer the company through the storm. The committee comprises the works director, the works manager, the production engineer, the plant engineer, the chief inspector, five shop stewards, and the personnel officer as secretary. Two observers, one a representative of intermediate management and the other a shop steward, attend each meeting on a rotation basis with new observers attending each meeting.

Such was the success of the committee on this particular subject, that, when the wage claim had been settled, the company decided to keep it alive and to broaden its terms of reference. Today, the members, who meet every fortnight, discuss such things as long-term production plans and company profits, and other subjects which have an indirect bearing on future wage levels. Minutes of the meetings are posted on the works notice board.

At all these meetings Mr. Barnard feels that the important thing is for the management to take immediate, enthusiastic and realistic action on all suggestions, as this is the only way to stop resentment—the feeling which 'extremists' are quick to exploit.

Mr. Barnard has great faith in the British worker. "He doesn't moan for nothing. If his tea is cold or he is working in a draught, then the management must do something about it. If they don't, then the seed of resentment can soon take deep root. And management should remember that every worker is a specialist, and knows more about his own job than other people. He can make important contributions to running the company efficiently, and should be given the opportunity to do so."

Weaknesses Revealed

The results of the various meetings have had a far-reaching effect beyond actual management-worker relations. They have thrown up definite weaknesses in management, particularly in shop-floor supervision. As a result, all foremen have been given the opportunity to attend tutorial courses dealing with the understanding of managerial problems, labour rela-

tions, industrial administration, costing and other aspects of control. Also the management have encouraged the foremen to form an association. This is quite separate from their forum, and has a different function. It gives them an opportunity to get together socially, with or without top management, to discuss personal and other problems.

Weaknesses were revealed even farther up the scale. Top management began to feel the 'upward thrust,' so they too decided to hold monthly meetings on the subject of joint consultation. At these, they mostly discuss what has passed at other meetings.

Another by-product of the scheme has arisen from the foremen's meetings, which are held half in the firm's time and half after-hours. At the first meeting, all foremen 'clocked in,' and claimed payment for the time spent at the meeting. At the next, Mr. Barnard suggested they give this further thought. Shortly afterwards the claim was withdrawn.

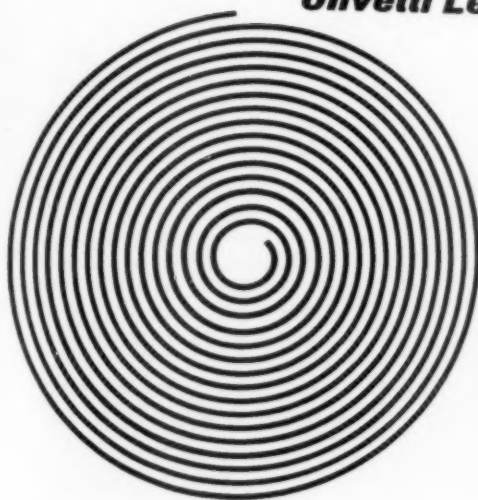
Now the foremen feel they are voluntarily making a bigger contribution to the efficiency of the firm. Mr. Barnard has a healthy respect for this attitude, and recently had all foremen transferred to the senior staff payroll. This means that they do not have to clock in or out, and that they qualify for superannuation and other senior staff privileges.

As part of his campaign, Mr. Barnard has put new life into the works suggestion scheme. In the past, results were posted on the works notice board sometimes as long as two months after the suggestion had been made. Mr. Barnard thought this was far too impersonal. So now workers get an acknowledgement from the works manager within 24 hours. A committee comprising the works manager, a chief engineer, production engineer and three shop stewards, meet every two weeks to judge the suggestions on the basis of product cost reduction, increased efficiency, etc. If a suggestion is accepted, Mr. Barnard immediately writes a personal letter of thanks and encloses the reward. If it is not, he

Continued on page 11



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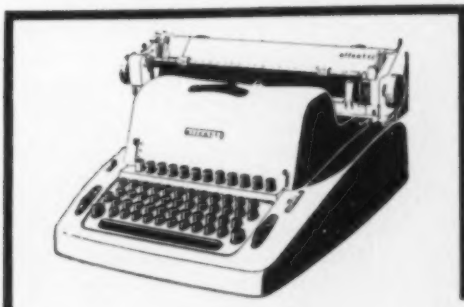
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33



Modern factories, comprehensively planned to meet the production needs of clients, are built by C.A.S. (Industrial Developments) Ltd. and leased at an economic rent

Tailor-made Factories On 'Easy Terms'

By GEORGE T. RAE

DURING the past few years many firms have made use of a service which provides factory and warehouse buildings on 'easy terms'. The buildings are tailored to their requirements and leased to them at economic rents so that they are free to employ their capital for developing the business.

Completion dates, once agreed, are guaranteed. Before any work begins the building is planned to the last detail, taking account, as far as possible, of likely developments in production and materials handling techniques. This involves what amounts to an industrial consultant's survey, during which every aspect of production is investigated. The resulting design is therefore efficient from the outset, avoiding expensive and time-wasting alterations at later stages.

The only cash commitment the client has to face is the 'developer's charge'; most of the costs met from this charge would have to be met by the client anyway if he were handling the development himself along the same lines.

No other organization, even in the U.S., provides such services on the same scale. Among the firms who have used it are Unilever and Dunlop (which may be surprising as they have their own consultant architects and surveyors), as well as many far smaller firms.

C.A.S. (Industrial Developments) Ltd. was formed in 1950. Its initials are those of its founder, Colin A. Samuels. He knew at first-hand the need for such a service. His pre-war training as accountant and his industrial experience took him into many different kinds of factory, and he had

been appalled by the inefficient construction of most of them. The most progressive and prosperous he had found, were those where most thought had gone into the layout.

After the war, Mr. Samuels founded his own small building firm. His work at first was like that of most small London builders—flats, houses, small conversions. He aimed at bigger things; but his obstacle was lack of capital.

Meanwhile the railways and other public utilities had been nationalized and the institutional investors—insurance companies with funds swelled by the post-war extension of superannuation schemes—found their traditional blue-chip investment channels closed to them. Mr. Samuels quickly realized that: (1) Here was the money that industrialists required to finance construction projects; and (2) Institutional investors would be more than willing to 'go into' real estate if it was sound and provided good returns. Mr. Samuels meant to ensure both.

He approached an insurance company, won their support, and added to his building firm an industrial development company.

There are six stages in the C.A.S. contract from the first approach by the client to the handing over of the building.

These stages are:

1—C.A.S. ascertain that financial support will be forthcoming for the type of development envisaged. (Pre-fabricated and certain other types of building are unlikely to be approved.)

Continued on page 2

BUSINESS

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The craftsmanship is excellent, and the choice of paper admirable. It is a rag content, tub-sized, air-dried paper of a specification guaranteed by the British Stationery Council, and there is no doubt that a really good paper such as this, gives an added quality to good printing.

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Yours truly,

J. R. [Signature]



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- 2—Finding a site, if as often happens, the client has not one in mind.
- 3—Planning the project to the last detail in consultation with the client, his own advisers and the C.A.S. construction team.
- 4—Agreement on the price.
- 5—Monthly meetings, on the site, of all contractors and sub-contractors, along with the C.A.S. team, to ensure that each knows the progress made by the others. Work done is costed, and paid for monthly. The client takes over and starts to pay rent.
- 6—The 'completion dinner', at which each contractor and sub-contractor receives his final cheque for work done.

To be reasonably sure of investors' approval the proposed building must be as 'flexible' as possible. There must be room for at least 50 per cent extension; floors must all be level; roof design must allow for maximum use of handling equipment like fork trucks; the structure must be permanent. But within these very broad specifications buildings can easily be tailored to special requirements.

For site-finding, two main agents co-ordinate the efforts of surveyors in the area under investigation. Considerable time is saved by their experience in analysing sites as to convenience to roads, railway, docks, canals; and room for extension.

C.A.S. have made mistakes. Trial borings were taken on the site of the depot for the Dunlop Rubber Co., Coventry. Due to the very tight construction schedule inefficient test borings were made and it was discovered too late that the site contained armaments dumped after 1918. C.A.S., bound by their contract, had to meet the additional cost of securing the foundations. That is why they make as few errors as possible.

Planning is the key to the smooth progress of a C.A.S. contract, and although he has several specialist advisers, Mr. Samuels plays the principal role. No consultant's ability is taken for granted. Every plan is discussed to the last detail. Often faults

are discovered that might have proved costly.

For instance, when C.A.S. were called in on a project for a large stores depot Mr. Samuels was shown plans submitted by the firm's consultants. After studying them carefully he decided that they were impracticable—manoeuvring space for the large vehicles envisaged was restricted. Before C.A.S. accepted the contract the fault was remedied. This sort of thing regularly occurs; naturally relations with other firm's consultants are sometimes strained.

Right First Time

But things must be right first time if completion dates are to be observed: sooner or later someone would have realized that the accesses were narrow, but by then it would probably have meant expensive alterations and delay. That is why C.A.S. insist on studying production methods and plant layout for new factories; and handling methods and types of road vehicles used, for warehouses.

One client proposed a factory of a certain size, to be extended later. But as a result of a survey by C.A.S., whereby three-line production was replaced by two-line production, the proposed floor area was reduced by a third, with no reduction in potential output.

Considerable time is saved by what is called the three-part contract: groundwork, steelwork, and building. This means that work on one stage can proceed while the final details of the next are settled. Equally important, it permits pre-ordering, helping to ensure that materials for the next stage are to hand. This pre-ordering was of vital importance in the construction in 1951 of Morphy-Richards' factory at St. Mary Cray, Kent. Steel licensing was suddenly reintroduced, playing havoc with building schedules throughout the country. But C.A.S. had ordered their steelwork in advance. The delay was restricted to six weeks, and by dint of a special effort by everyone on the job, completion was on time.

Alterations to the basic design can

be made even after the plans have been agreed, but this can add considerably to the price.

The system of regular on-site meetings is one of the most important elements in getting the job finished on time. If a contractor or sub-contractor has fallen behind schedule due to weather or material shortages, the C.A.S. team discuss the best way of solving the problem—and the meeting does not break up until they have.

Monthly costing of all work done is accurate to the last penny, unlike the haphazard costing common in the building industry. With C.A.S. it has to be accurate—contractors are paid on the spot for all work done during the month.

Representatives of all firms who have worked on a contract are invited to the completion dinner. Final cheques are handed over on the basis of the last monthly costing.

Achievements

Among C.A.S. achievements are: Permal Ltd., Gloucester. The firm's own five-year-plan for incorporating five production units and two warehouses on one site was telescoped by C.A.S. into 19 months.

Dunlop, Coventry. Nine central stanchions support a roof covering 219,000 square feet. Building completed in 12 months. Designed for palletization of all tyres and wheel rims, including giant sizes, a major step forward in the firm's palletization programme.

S.P.D. Ltd. (Unilever). Various distribution depots, all entirely palletized. At one time the C.A.S. design was a world prototype for S.P.D. One finished six months ahead of agreed date.

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AUGUST, 1957

The application of decimals to British units of measurement can produce many of the advantages of the metric system. A small firm has found that calculations are easier and ledger entries cleaner. All accounting is done on a standard machine

Decimals Make Accounting Easier

By WILLIAM GUTHRIE

ALTHOUGH the superiority of the metric system for calculating quantities and costs is universally recognized, tradition has proved an insuperable barrier to its adoption in Britain. Nevertheless some of the benefits of the metric system can be gained by the application of decimals to British units.

The idea itself is not new. Engineers have for long been calculating in tenths and thousandths of an inch. And many business firms use decimal fractions of the standard units for various purposes, the most common of which is probably costing.

A small Midland firm, employing about 100, have carried the idea further than most. All measurements throughout their works are now reckoned in decimal fractions of three standard units—prices in shil-

lings, weights in cwts. and numbers in gross.

This has produced a number of advantages. Calculations are more easily made and checked than with the old multi-unit system. Entries are 'cleaner' because of the need to use only three units. And a single accounting machine, originally bought for the purpose of making up the firm's ledgers and payroll, can now handle the additional job of store-keeping.

Mixture of Units

The firm are Joseph Gillott and Sons Ltd., Dudley, Worcestershire. Although their traditional business is manufacturing pen nibs they also make pencil sharpeners and small precision pressings for the engineer-

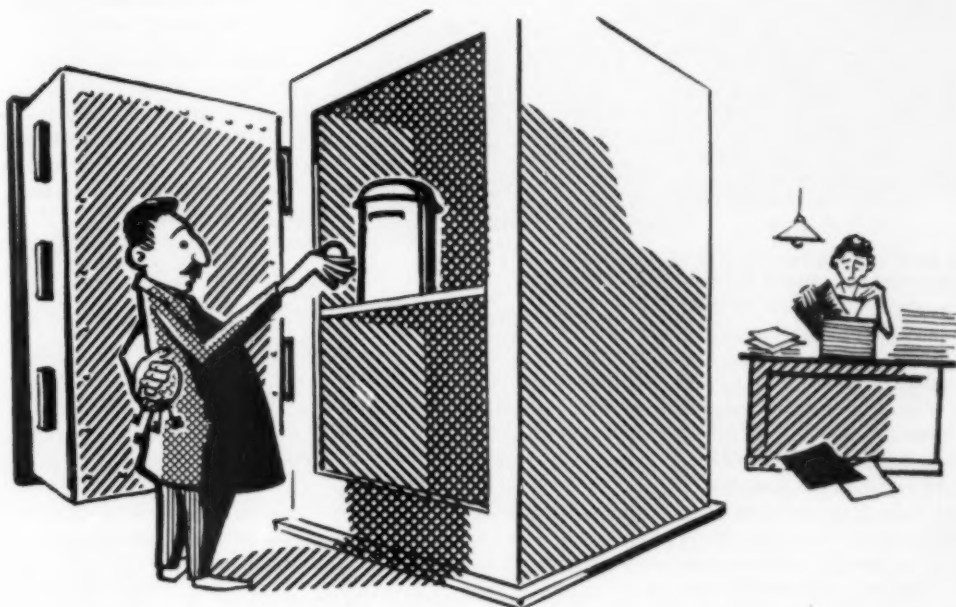
ing industry. Pen nibs have always been reckoned by the dozen and gross, even in the 'metric countries', but the engineering industry reckons components by the thousand as well as by the gross. The raw materials used by Gillotts are conventionally measured in tons, cwts., quarters and pounds. Under the old system, therefore, their store-keeping records contained a mixture of gross, thousands, tons, cwts., and pounds weight. Where the sterling value of stores was recorded, this meant the additional complication of pounds, shillings and pence, and errors were easily made.

About seven years ago Gillotts began to use decimals, like many other firms, for costing. Costs were expressed in decimals of a shilling, made up of operator time, material used and a percentage for overheads. This method was immediately practicable because it concerned only the firm's own departments. No one else had to be advised or even consulted.

The managing director, Nicholas Gillott, was so pleased with the working of the system for costing that he wanted to apply it to store-keeping as well. But the disruption caused by a move from the company's original factory in Birmingham to specially-

The company's transfer to their modern Dudley factory was the 'go-ahead' for using decimal accounting for stores and invoices. Their system, Gillotts feel, places them in a better position than most for trading with the proposed European Common Market.





Look after the pence . . .

There are better ways than this to save money. One of them is to investigate the cost of paper work in your business. Two possible sources of saving are—(1) elimination of needless repetitive copying of information—(2) reduction of time spent by typists and clerks in preparing multi-copy forms of a routine character.

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The Paragon representative, given the opportunity, can design a system suited to the requirements of your organisation. See him when he calls.

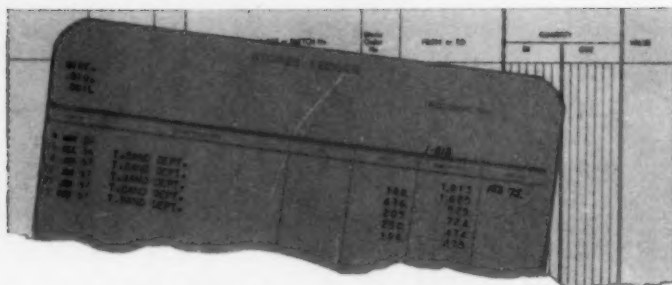


A great time saver in the typing department is "Parabar" Continuous Stationery. The Parabar attachment is easily fitted to any typewriter. Carbons, ready interleaved in the first set of forms, move to the next set on withdrawal of the completed forms from the typewriter. Typing output fairly jumps.

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Re-design of two forms was the principal change required. A comma takes the place of the decimal point. Where no comma appears the figure is a decimal.

built Dudley premises forced him to postpone this plan until last autumn.

Mr. Gillott decided that all stores, raw or finished, entering or leaving, should be expressed in decimals of a gross, for those measured by number, or in decimals of a cwt., for those measured by weight. Where prices or values were stated, shillings and decimals of a shilling would be used. Conversion tables were issued to the storekeepers, and new stationery was designed to take advantage of the system's simplicity.

The main difference between the old and new stores records is in the 'Quantity In-Out' columns, where a heavy line indicates the decimal point. This heavy line is important: with the new system the position of the point is of course vital, and without the line it would be difficult to ensure that it was clearly marked, especially as the record is filled in by hand and in pencil.

Simple Cross-Check

Each page has room for about 35 entries. When a page is complete, the quantities in and out are totalled. (Items expressed in different units can safely be added together—the totals are only used for the checking of postings.)

The page is torn along perforations, and sent to the accounts office where the entries are posted on the accounting machine to the stores ledger cards. There is a card for each item in the stores. The totalling of the page entries provides a cross-check for the machine operator, in

case she misses an entry. The page total should agree with the cumulative amount posted to the various cards, which is automatically registered by the machine.

On the stores ledger cards, issues from stores are shown in red and receipts in black. The standing balance is automatically struck and this, in conjunction with the figure in the 'rate' column (the current value in

shillings per gross or cwt.) enables the value of the stock of a particular item to be quickly calculated.

Suppose an operator signals that she is running short of a raw material. The storeman knows that she uses .010in. thick wire coil and takes 14lb. at a time. He therefore issues her with this amount, refers to the conversion table and enters '0.125' in the 'quantity out' column. The accounting machine operator does not need to know whether the item is in cwt. or gross. All she is concerned with is the amount and value.

The decimal system has made the accounting machine much more versatile. Only the £ numerals are used, those for shillings and pence being ignored. Decimal calculations can be done in any unit, but the use of three places of decimals reduces the maximum count of the machine from 9,999,999 to 9,999 whole numbers, followed by three places of decimals. The comma, normally appearing

Two-way Advantages

For the Firm

1 – *Simpler, shorter entries in ledgers and stores records, all expressed in one or more of the three basic units—shillings, gross and cwt.*

2 – *Quicker, easier checking of ledgers and invoices. A simple cross-checking system, facilitated by the need to reckon in only one unit at a time, throws up stock errors clearly.*

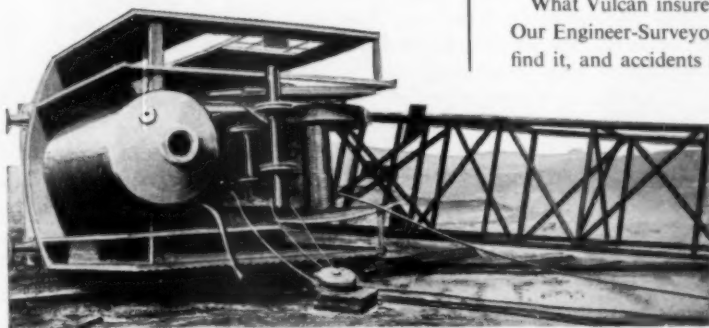
3 – *Comprehensive mechanized accounting is possible—for stores and financial ledgers, as well as wages.*

For the Customer

Invoices are easier to check. At first some customers rang up to ask what it was all about but only one continued to complain. His invoices are therefore made up with conventional units in brackets.

One heavy blow, and it was all over . . .

The load was seven tons, instead of the safe five. A wind squall of 51 m.p.h. created a pressure of 10½ lbs. sq. ft., which was 5 lbs. over the working margin. So, it's not surprising that, what with the weight and the wind, the crane just couldn't stand any more.



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after the 'thousands' figure, takes the place of the decimal point.

Units do not matter to the operator. As far as she is concerned, 4,156 can be shillings, gross or cwt. Of course, the relevant ledger or stores record immediately tells the storekeeper, accountant, or anyone interested, what the unit is. Special stops are inserted into the machine when it is used for decimals, and removed for reversion to financial accounting. These prevent the shillings and pence columns from being printed.

Mr. Gillott was so impressed by the results of decimal store-keeping (fewer errors and 'cleaner' accounting) that he decided to apply the system to customers' invoices as well. This required considerable courage, because of the danger of puzzling or even annoying them.

His first step was to draft a circular letter, to be enclosed with each invoice, explaining that the introduction of the decimal system for store-keeping had proved so beneficial that they had decided to extend it. Total

amounts payable would continue to be shown in £ s. d., but component quantities would be shown in gross and decimals of a gross, and their prices in shillings and decimals of a shilling. Appended was a quick reference conversion chart.

Invoices now show 18 as .125 gross, 7,000 as 48.611 gross, and £5 10s. 6d. as 110.5 shillings. The customer, instead of being invoiced for three gross, seven dozen articles at £2 10s. 6d. a gross, is invoiced for 3.583 gross at 50.5 shillings a gross. All office calculations are done quickly and simply on a small lever-set cylindrical calculator and the risk of error is considerably reduced.

Other Staff Freed

As a result of the new method, labour in the office has been redeployed rather than reduced. The clerical staff has always been small: now it is more convenient for one clerk to be employed full-time on the accounting machine, instead of its

being used intermittently as hitherto.

This centralization of accounting, both stores and financial, has freed staff in other departments for other duties.

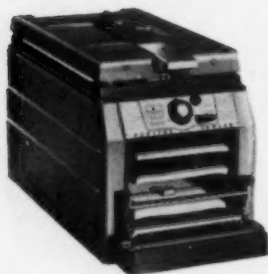
There is a possible long-term benefit for Gillotts in their use of the decimal system. Now that this country is likely to take part in the European Common Market, many companies are concerned about the complications which will arise because of the differences between the British and Continental systems of measurement. Gillotts believe that they will be better equipped than most to deal with these difficulties. The staff are already accustomed to working with decimals; the only complication will be the substitution of other units.

The firm have shown that there is a compromise between the intractable British units and the easily worked metric system. What they have done is to graft some of the metric benefits on to the existing framework—and prove that the idea works well.

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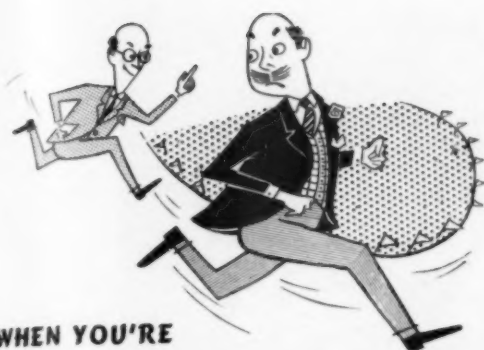
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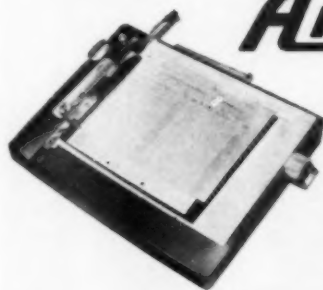
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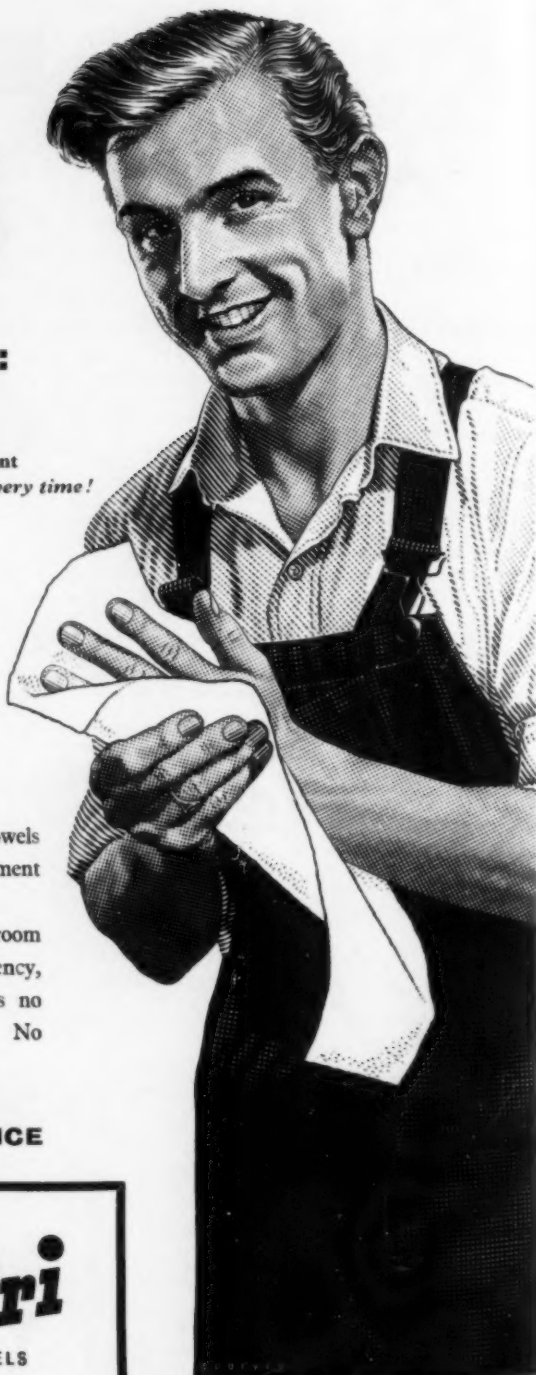
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By W. BOYD MAUNSELL

THE Stamford, Lincs., branch of Ellis and Everard Ltd. went over to a new sales ledger system three months ago. Already bills are being paid in the second week of the month—before they would even have been sent out under the old system. The total debt on the ledger is considerably lower than it would have been. The ledger staff has been reduced and it is possible to check any customer's balance at a glance. All this has been achieved for an outlay of £455, including one year's supply of special stationery.

Ellis and Everard Ltd. distribute coal, building materials and agricultural supplies over a wide area of the Midland and East Midlands. These materials are sent out from a large number of depots administered by local branch offices. Each office and, indeed, each depot is expected to show an individual profit and branch managers enjoy a generous measure of independence. Thus, the decision of the Stamford branch to reorganize its sales ledger system was the branch manager's responsibility and initiative.

The Stamford office has five depots

under its control. Each has a separate sales ledger. Together, these cover 5,500 live accounts at present. Four of the ledgers were transferred to the new system about nine months ago; the other one—which was the largest—followed six months later. In this way minor troubles of the kind associated with any administrative change were staggered.

The main objects of the change were:

- 1—To reduce operating costs.
- 2—To get accounts paid earlier.
- 3—To spread work more evenly over the month.
- 4—To reduce copying errors.
- 5—To keep both the ledgers and

customers' accounts permanently in balance.

Before the change, sales accounts had been kept in traditional bound ledgers. Each transaction had to be recorded three separate times: the delivery note was copied into the ledger and from this the customer's statement was prepared. Now, when the customer's statement is compiled, his card in the ledger and the permanent record of credit deliveries from the depot concerned are brought up-to-date as carbon copies. Thus the possibility of copying errors is halved.

When a sale is made, the depot foreman makes out a delivery note in quadruplicate. One copy is handed to the customer; the second is signed

by him and retained at the depot as a receipt; the third goes to the office for pricing and is eventually copied out into the ledger; and the fourth is kept as a permanent record.

Each delivery is entered on the customer's statement as soon as it reaches the ledger office. The same entry appears as a carbon copy on a specially-designed ledger card and on a posting sheet recording deliveries (and payments) from the depot in question. Thus three entries are made simultaneously, and the customer's statement, filed with the ledger card, is immediately available at the end of the month.

The entry shows the date of delivery, the delivery note reference number, the description and quantity of the goods delivered, the debit to the customer's account, and his current balance brought up-to-date. The three forms also have separate credit columns in which payments are recorded. Thus the bottom right hand entry on the statement and ledger forms show the customer's balance

at any given moment, and the bottom line of the posting sheet, whether debits or credits are concerned, is totalled and checked against the copy delivery notes, whose value has been pre-listed.

The actual entries are made on a board equipped with two independent slides. The top two copies—the statement and the ledger card—are clipped together into the top slide and can be moved up or down the board so each entry registers correctly on the posting sheet underneath. The second slide is used to adjust the position of all three forms on the board to suit the clerk's convenience without upsetting the register of the copies.

Quick Reference

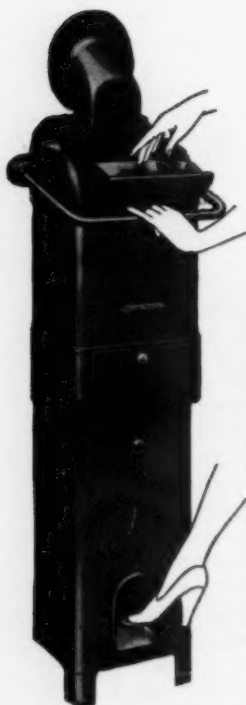
The statements and ledger cards are held in 'Visipost' record trays. This system has no fixed pockets—the cards are located by indentations along the bottom edge, while 'angled' corners provide visible titles for all

records, which, in turn, give quick reference to the posting clerk.

Also there is no possibility of accounts being entered out of alphabetical order as can so easily happen with a bound ledger. Along the right-hand top corner of each ledger card there is a row of blue dots. When the ledger is full, these are covered by the card on the right, but show conspicuously if it is missing. It is, therefore, the work of a moment for the clerk to check if any of the cards have not been returned to the file at the end of the day. The posting sheets are filed separately in a fire-proof safe.

Each depot's ledger is kept in a separate tray. Where one customer buys from more than one depot, separate statements are prepared, in addition to a summary account.

The trays are mounted on trolleys to stand below desk level, so that the clerk can use the file comfortably without moving her chair. Originally Ellis and Everard Ltd. bought the trays without the trolleys, but these



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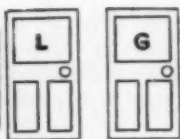
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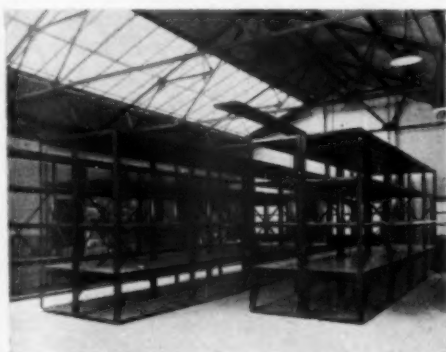
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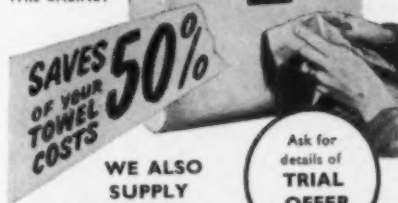
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were found to be extremely inconvenient and cumbersome to use on a desk.

What has the change achieved? In the first place, statements are going out quicker than before and money is coming in sooner. Using the old bound ledger system, the Stamford office found that it could not get its statements out until around the 14th of the following month. Now, for those depots which have been using the new scheme for nine months, statements are put into the post around the 4th, and the firm hope to improve on this in the near future. Even the two ledgers which were only transferred to the new system three months ago can already be cleared some five days earlier than before.

Less Money in Ledgers

As a natural corollary, there is less money in the ledgers than there would otherwise have been. Though the Stamford branch has stepped up its sales by 19 per cent over the last two years, its outstanding ledger totals

have risen only by 13½ per cent. Cash still on the ledger after eight months has fallen to little more than a third of what it was two years ago. The firm say that some of the credit for this goes to the new ledger system.

Not only are statements presented more promptly, but each customer's account is permanently in balance, as is the ledger itself. The amount owed by any customer can be ascertained at a moment's notice and reminders can be sent out easily and promptly.

The new system has already proved cheaper to operate. Before it was introduced, the Stamford office had at one time employed as many as four full-time ledger clerks and one part-time clerk. The same work is now done by two full-time employees. This is not, admittedly, an absolute saving in wages since rather more intelligent (and therefore more highly paid) workers are needed to keep the new ledgers. But it is remarkable for a relatively small capital outlay.

The copying work in the ledger office has been cut by half and the

work spread evenly over the month. Under the old system each customer's account had to be balanced at the end of the month and his statement prepared from the ledger; now the statement is lying ready for mailing alongside a balanced ledger card. Moreover, an accurate posting sheet has been prepared for each depot without any additional labour or cost.

Initial Difficulties

The firm stress that this has not been achieved without difficulties. Elderly office staff found it difficult to adapt themselves to the new method. It took a month to transfer existing balances on to the new cards and the office routine fell a fortnight behind—the transfer being made at a peak period of Ellis and Everard's rather seasonal business. To start with, there were the confusing and frustrating minor slips that might be expected: carbons were omitted or entries superimposed on the posting sheet. But such teething troubles were quickly overcome. END



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BUSINESS Equipment Survey

method of recording information is the reverse of that in general use. The cards are divided into squares numbered from 1 to 1000, each number representing a person or article; the cards themselves represent characteristics of the things listed.

In a personnel system, for example, the numbers would represent persons, and would be used in conjunction with a numbered list of names. The cards themselves might be labelled with such characteristics as 'under 21', 'can type', and 'married'. Each employee's data would be entered by punching out the space corresponding to his number in every characteristic card which applied to him. Thus detailed personal records of up to 1,000 persons could be entered on as few as 20 cards—the exact number depending on how much information was required.

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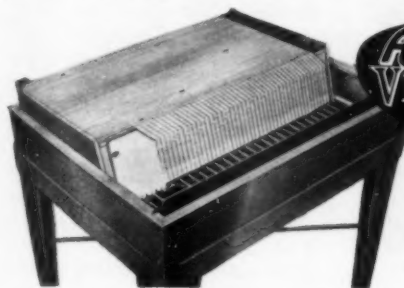
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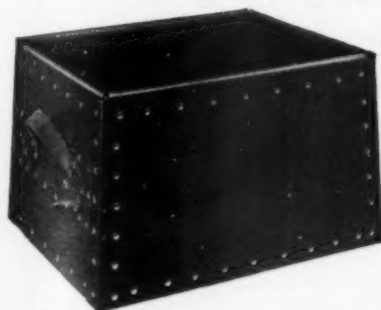
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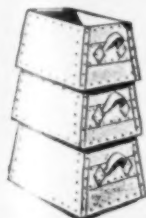
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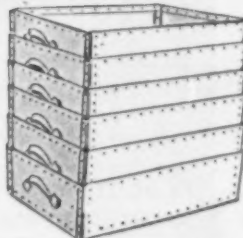
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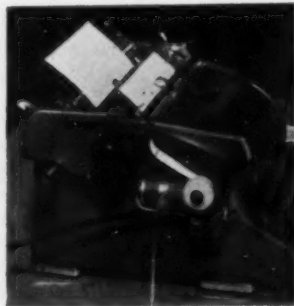
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Measures typing speed

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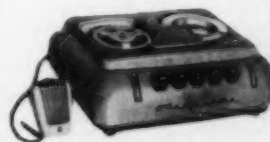
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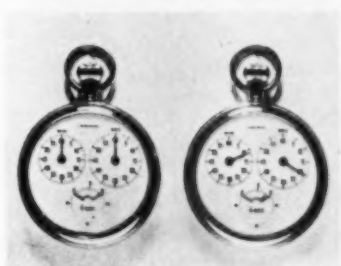
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Accurate Timing

THREE dials, recording time in minutes, seconds, and tenths of a second, are claimed to give the T.D.50 unique accuracy for timing processes and operations.

The use of three dials practically eliminates the danger of mis-readings. The decimal hand cannot stop between strokes. The instrument is shockproof, enabling it to withstand



No mis-readings

the rough usage it is likely to receive on the factory floor. The movement has seven jewels.

Operation is by a three-pressure sequence. First pressure on the button starts the hands, the second stops them, and the third returns them to zero. Maximum time count is 61 minutes.

The instrument can be used in most applications where exact timing is essential, and which previously had to rely on larger or less exact instruments. It is guaranteed for one year.

*Industrial Timing Instruments,
25 Holborn Viaduct, London E.C.1.*

Versatile Gauge

ONE of the commonest tool-room problems is the accurate location of distances between hole centres without the aid of a jig-boring machine. Until the introduction of the *Holemaster* the alternatives were tedious.

This enables jig and fixture plates, die blocks and other precision items to be drilled without marking out or

even a centre 'pop'. Devices like toolmakers' buttons are not necessary. Holes in line or at any angle can be drilled to an accuracy dependent solely on the gauge used for setting.

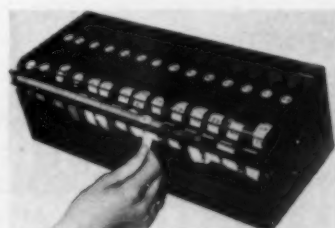
The design is simple, consisting of longitudinally slotted, hardened and ground steel parallels provided with a hole at each end in line with the slot. Drill guide bushes, each a sliding fit in the slots, are locked in any position. Steadying pieces with slots in arc-form join the ends of the parallels so that they can be adjusted to any angle. Working capacity is unlimited as the instrument can be built up to meet requirements.

Typical applications are drilling: holes in line, holes at angular dimensions from any centre point, holes on a circle. It can also be used for precision measurement and inspection. For angles it is much more accurate than a vernier protractor; and it can also easily be converted to an adjustable 'go no-go' gauge.

*Euco Tools Ltd., 44 London Road,
Kingston, Surrey.*

For Self-service

FOURTEEN different rolls of self-adhesive paper labels are accommodated on the *Speedfix* dispenser. It provides a compact and simple method of taking a variety of prices through the various departments of a shop, particularly in self-service stores. The dispenser is also invaluable in industrial or packaging processes where a variety of printed text or designs are needed. The labels can



Quick price-tagging

be printed in practically any size required and in a very wide range of shapes.

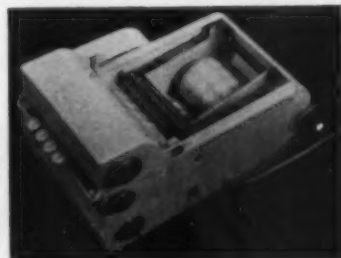
Apart from its speed and convenience in operation, the new dispenser will keep the labels in good condition. Also available for use in conjunction with a battery of these dispensers, is a special mobile trolley built to accommodate 4 or 6 of them, thereby covering a wide range of prices.

*Merchandising Department,
Ofrex Group, Ofrex House,
London W.1.*

Label Dispenser

SIMPLICITY of operation is the main advantage of an electrically operated dispenser for self-adhesive labels.

The *Multimatic Prestic* eliminates waste and speeds label application. It feeds a new row of labels to the operator's hand as soon as the last of the previous row has been used. A roll of labels is fitted into the back of the dispenser, which will accommo-



Simple to operate

date any width up to six inches. The paper backing is then fed under a roller which keeps it taut, across a heated element, over a right-angle edge and down to a pair of rollers in the base of the machine. These rollers, operated by an electric motor, pull the strip of paper backing through.

The *Multimatic* can be used with any type of *Prestic* label, no matter what the size or shape.

*Industrial Sellotape Division,
Gordon and Gotch Ltd.,
8-10 Paul Street, London E.C.2.*

Heater Unit

SEVERAL new features are incorporated in the *'Uniflow'* heater. Body styling and heating element are

BUSINESS Equipment Survey

both new. The outer casing, with clean and attractive streamlining, conforms to modern trends and harmonizes with contemporary buildings yet lends itself to large scale production methods with resultant benefits to the user in terms of cost and delivery.

The heating coil provides a greater heat output than a conventional coil of the same size. The fan and motor assembly are resiliently mounted on the casing to reduce noise and vibration to the minimum. The assembly is enclosed in a strong wire mesh guard designed as an integral part of the unit.

*F. H. Biddle Ltd.,
16 Upper Grosvenor Street,
London W.1.*

Bore Gauge

EVEN the simplest device for accurate measurement of bores may need a considerable outlay. The cheapest device is some form of dial indicating cylinder gauge, but where



An economical way of covering a wide range of sizes

a wide range of sizes has to be covered this method is expensive.

The *Multi Bore Set* comprises a gauging head, together with three interchangeable stem members, each complete with measuring shoe. The use of this set enables bore diameters between $\frac{1}{4}$ in. and 2 in. to be accurately measured, and the interchanging of the stems is accomplished in a matter of seconds.

The instrument shows a considerable saving in cost over similar types

of equipment with an equivalent range, this being a direct result of the unit construction method employed.

British Indicators Ltd., Sutton Road, St. Albans, Herts.

Touch-up Kit

FREQUENTLY the finish of painted products is damaged in the factory by minor accidents before despatch. In showrooms, too, goods like cars and other expensive items often receive small abrasions.

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*Alfred Bullows & Sons, Ltd.,
Long Street, Walsall, Staffs.*

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THICKNESSES from 20 s.w.g. to $\frac{1}{16}$ in. for lap welds and $\frac{1}{16}$ in. for butt welds, and widths up to 9ft. are handled by the *Courburn* sheet welding machine.

One sheet of the material to be welded is fed in under the clamping beam on one side of the machine against 'stops' in the form of hinged locating arms dropped down on to the weld path. That sheet is then clamped by operating a single air valve controlling the bank of 14 clamps. The locating bars are then swung back out of the way, and the second sheet is fed in from the other

side of the machine, positioned in relation to the first sheet, and is itself clamped by the second bank of 14 clamps.

A submerged-arc automatic head is then set in motion, when it rapidly traverses the full length of the welding path, providing a smooth, even weld which requires no fettling.

*Courburn Positioners Ltd.,
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Meat juices 'locked in'

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TRANQUILLIZERS

Continued from page 57

may be an exceedingly useful drug if used with caution and on medical advice. For the present, our knowledge of its potential is far from complete. But reaction against initial over-enthusiasm should not stop intensive research into its true possibilities.

One simple fact should be faced: almost every executive, almost every person holding some degree of responsibility and authority needs help to keep on top of the strain that modern life puts on them. This help may take the form of golf or smoking, of alcohol, coffee, aspirin, ultraviolet rays or vitamin pills. But few and far between are the people who, without any of these relaxants and stimulants, can turn in a consistently good day's work and enjoy a sound night's sleep.

Medical Value

If, therefore, meprobamate, or any newer substance, turns out to be an effective means of reducing muscular tension and allaying excessive worry without inducing irresponsibility, and without undesirable side-effects, it will have a valuable place in medical practice. It is even possible that it will come to offer a measure of protection, in cases that need it, against 'executive' diseases—coronary thrombosis, peptic ulcers, and the rest.

But before you rush out to buy your supply of 'happy' pills, it will pay you to stop and consider: wouldn't it be better to see your physician first, and obtain a *rational* prescription for your ills? It may be that you need, not a tranquillizer, but a stimulant. Perhaps you are not run down, as you think, but suffer from a defective gland. Perhaps a tranquillizer would merely smooth over important symptoms, giving a minor organic fault time to grow into a major one.

Perhaps, all in all, that visit to the chemist's may turn out to be the most expensive walk you ever took.

END

HOTHOUSE FOR EXECUTIVES

Continued from page 60

get all about it. He invariably carries a small notebook for this purpose, and encourages his executives to do the same.

"A businessman," he says, "must control events—and this means that he must start by controlling his thoughts. Sometimes I make a note in my book that I am going to think about such-and-such a subject—say the patterns for a new line—at such-and-such a time. If I didn't organize myself for creative thinking, it would never be done."

For deciding whether or not to go ahead with new lines, he has a very simple formula. It consists of two questions: "How much will we lose if the worst comes to the worst? Can we stand a loss of that order?" Answer these questions, he says, and the decision is made!

Restricted Range

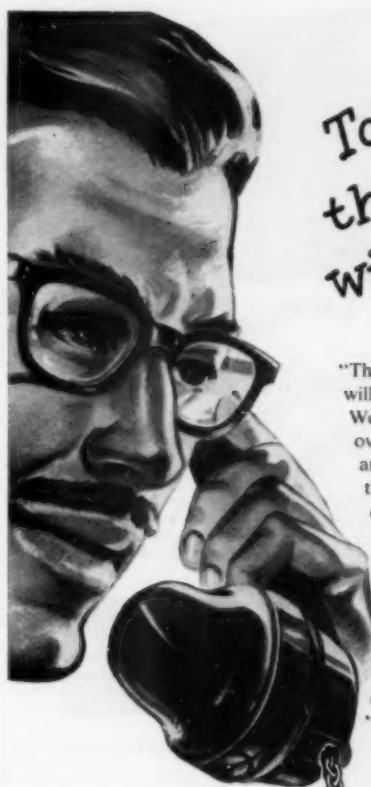
But the introduction of new lines is a comparatively rare event. The main plank in Rael-Brook's manufacturing policy is standardization; they have followed, to a large extent, the Ford dictum of "any colour you like as long as it's black." By restricting themselves to a very small range of shirts they have been able, even in the early days, to compete on equal terms with the individual lines put out by much larger firms.

Harry Rael-Brook is a restless man. Outside his business he has very few interests. Relaxations? "I don't know how to relax," he says.

Today he faces the problem of shedding still more of his day-to-day responsibilities. New projects are in the planning stage, and he has to be free to concentrate on them. Nevertheless, he has no intention of abandoning two of the small jobs which he has been carrying out ever since the little enterprise became an 'organization'. One is to walk around the warehouse every day and have a look at his products. The other is occasionally to visit about a dozen retail shops and have a look at his customers.

END

AUGUST, 1957



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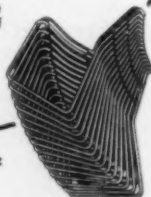
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BARRIERS DOWN— PRODUCTION UP

Continued from page 78

still writes a letter of thanks, but gives reasons for the rejection.

Off its own bat, the judging committee may give awards of up to £5. Anything above that amount has to be approved by the management committee. No time is lost in taking action on the suggestions, for Mr. Barnard feels that 'recognition' gives far more satisfaction to the workers than the cash prize.

In four years, nearly 3,000 suggestions have been made, and about one-third of them adopted. At one time, the judging committee were so inundated by suggestions and so many were in the process of being carried out, that the scheme had to be suspended for a short period. Regular poster campaigns, often aimed at specific subjects or departments, keep interest alive.

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Today, Mr. Barnard says: "The company's joint consultation set-up may look fine in retrospect—it may appear to be a well-planned project. In fact, it was very much a trial-and-error affair. We discovered our mistakes through experience. But we never lost sight of the 'human' approach.

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"We have found that it is imperative not to under-estimate the intelligence of the average worker. He is well educated, he reads his papers, listens to the radio and watches television, and he knows, on the whole, 'what's what.' He will not accept cock-and-bull explanations any more. The days of management talking down to labour are finished—or should be. We prefer to talk man-to-man, with neither side holding the whiphand. That this approach pays is proved by the fact that our output per man is the highest in the industry. And that was our original aim." *END*

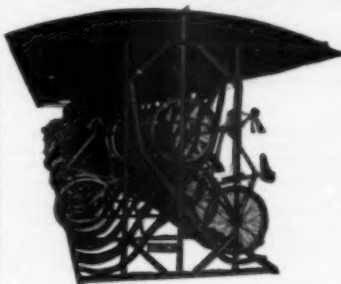
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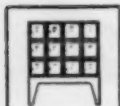
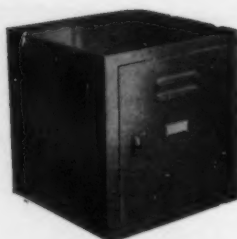
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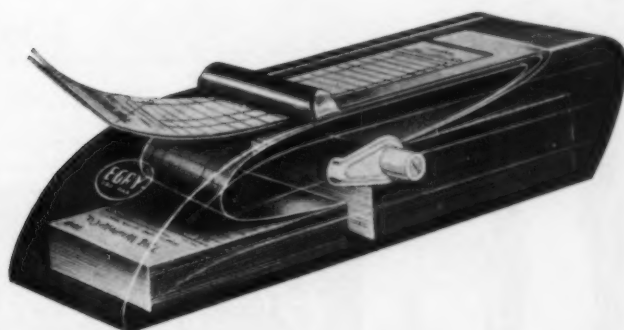
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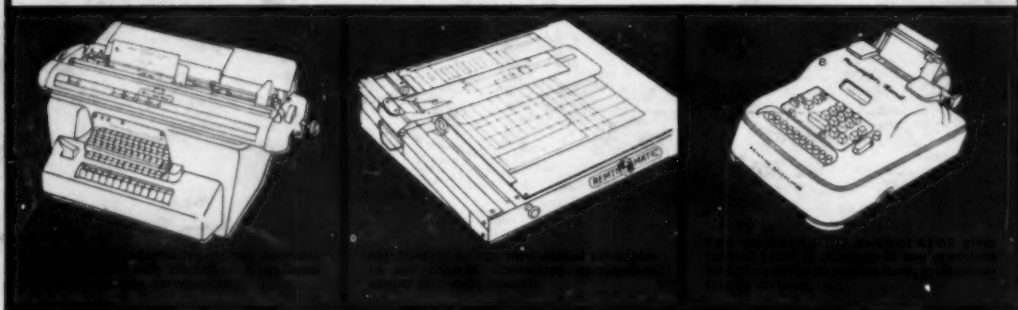
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